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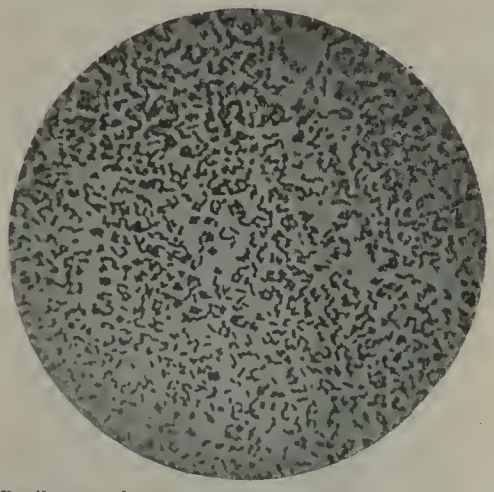
"Fire Blight" Successfully Combated*

D. H. Jones, O. A. C., Guelph, Ont.

IN order to successfully cope with a disease, whether it be a disease of animals or of plants, it is most desirable to know its specific cause and its methods of attack. Practically all that is known concerning the precise nature of infectious diseases, both of animals and plants, has been learned during the last thirty years or so. Everyone now is familiar with the precautions necessary to prevent the spread of typhoid fever, cholera, tuberculosis and anthrax, and other infectious diseases in man and animals. Individuals suffering from these diseases are isolated as far as possible and care is taken that all discharges from their bodies are burned or otherwise disinfected. These precautions are necessary because these diseases are the result of micro-organisms gaining access to the body through water, food or wounds, and there rapidly multiplying. Their multiplication produces the symptoms of the disease, and as millions of the germs are soon produced in the body from a few that have gained entrance, some of these are given off in the discharges, and if these are not destroyed they are liable to spread the disease to whoever comes in contact with them.

The disease of some trees known by the various names of fire blight, pear blight, apple twig blight, body blight, and blight canker, is a bacterial disease, and hence if its spread is to be prevented precautions must be taken somewhat similar to those found necessary in dealing with bacterial or infectious diseases of man and animals.

So far as is known, the disease is peculiar to North America, where it has caused immense losses to pear and apple growers. In addition to being found on the cultivated and wild varieties of apple,



Bacilus amylovorus, the germ which causes the blight. Magnified 1000 times.

pear and quince trees, it is common on the juneberry, hawthorn and mountain ash, and occasionally it is found on the plum.

EFFECTS OF THE DISEASE

The disease is caused by a microbe known as "Bacillus amylovorus," which on gaining entrance to the bark of a tree subject to its attack, rapidly multiplies there and in doing so kills the bark. If the bark attacked be that of a twig, the twig with its leaves, blossoms or fruit will wither, turn brown and die. If the bark attacked be that of the trunk or main limb, the result is a canker of the area attacked. The cankered area is usually darker colored than the healthy part, is somewhat sunken, and usually surrounded by a crack. If the cankered bark be cut, it will be found to be brown and tough instead of being white or light green and tender. The canker in the apple tree does not usually spread to very great dimensions except in a few varieties, principally the Russian varieties. With the pear tree, however, it is different, for when the bacillus finds entrance to the bark of the trunk or a main limb of a pear tree it usually continues to spread there until it has killed the tree.

PEAR TREES SUSCEPTIBLE

For the disease to spread rapidly in a tree it is necessary that the affected bark be juicy. The bark of the large limbs and trunk of the pear tree is softer and more juicy than that of most varieties of apple trees. Hence it is that the disease spreads more rapidly and does much more damage in the trunks and large limbs of the pear than in those of the apple. On the other hand, the bark of the twigs and young shoots of the apple is softer and more juicy than that of the pear twigs, and consequently blight of the apple trees is usually in the form of a twig blight, all the young growth on a tree often being killed in one season.

Trees in sod are not so sappy as those under cultivation. Hence it is that the disease kills off trees in well cultivated orchards more often and more rapidly than in orchards that are in sod. However, sod is not the ideal condition for an orchard. It not only curtails the production of fruit and hinders the development of the tree in general, but it harbors numerous insect pests for which it is a good breeding ground. We must, then, if we are to get the best results from our orchards, cultivate them and find some other means of keeping the blight in check than by leaving them in sod.

HOW THE BLIGHT IS SPREAD

Insects, more than any other thing, are responsible for spreading the blight. It was demonstrated a few years ago that bees, wasps and other blossom visiting insects often carry the germs of the disease on their bodies, especially their mouth parts, to the blossoms they visit in the orchard. When they insert their

*An address delivered at the annual convention of the Ontario Fruit Growers' Association held in Toronto last November.

Apple tree badly attacked by "Fire blight" through blossom inoculation in spring and twig inoculation by aphids. Eighty per cent. of twigs and small branches killed out in one season.

Young pear tree, with one branch inoculated with the germs by the pruning saw. The branch was killed and the disease was spreading from this branch to the others.

Typical blight canker in the bark of a large limb of a Tolman Sweet, which developed at the base of a watersprout that was inoculated by aphids. Many cankers so caused were on the tree, some of them spreading sufficiently to girdle the limb.

proboscis into the flower to get the nectar, they deposit a few germs in the nectaries, and here the germs develop rapidly, kill the flower, and pass down the bark of the flower stem to the fruit spur, kill it and all the other blossoms on it; they continue to work their way in the bark, passing on down the twig to the larger branch, and thus we get a typical case of "twig blight."

When the disease is active in a sappy tree, there is often a gummy exudate from the part affected. This is usually amber-colored and may be seen on the outside of the diseased bark, sometimes in globules and sometimes slowly streaming down the surface. This gummy material is teeming with the disease germs and many insects like to feed on it, and in feeding on it they get their feet and mouth parts covered with the germs, and these when they fly away they take along with them. So when they fly from a diseased tree to a healthy one, they are liable to inoculate the latter with the disease germs from the former. The inoculation is made either through the flower by the honey seekers or else by a puncture of the bark by a biting or boring insect, such as a beetle, or by a sucking insect, such as the various plant bugs and aphids.

We found as the result of our observations made in the college orchard and many orchards in the Niagara, St. Catharines and Whitby districts, that fifty per cent. of the total amount of twig blight on apple trees in 1909 was due to its spread from tree to tree and from orchard to orchard by aphids (Aphis mali and Schizoneura lanigera), and that practically all the twig inoculations that were made after the blossoming season were made by these same orchard pests.

The aphid's favorite feeding place is on the water sprouts, suckers, and young twigs of the tree. It is here they find the tender bark which they can easily puncture to obtain the plant juice which is so plentiful there. It is the tender, juicy bark that, as we have before mentioned, supplies the ideal conditions for the blight germ to rapidly develop in. An aphid when feeding punctures the bark from which it draws the sap with its sucking tube. Should the twig which it punctures have the blight, the sucking tube which is inserted in the bark will be contaminated with the blight germ, and large numbers of germs will be drawn into the body of the insect and will cover its mouth parts, and so, when the aphid moves to another twig, it will carry the germs along with it, and on puncturing the fresh twig will inoculate it with these germs. We found this to be happening in practically all the orchards we visited during June, July, and early August. We found many young trees that had not yet borne a blossom and that were absolutely free from blight before the aphids came in June, to have after this date all their young shoots killed out by the gradual

Trunk of young pear tree, near the ground, showing a rapidly spreading canker, which developed as the result of the tree being inoculated with the germs of the shot-hole bark-boring beetle, Scolytus rugulosus. The minute borings of the beetle may be seen close to the arrow points. Notice that the borings are usually within a bud scar.

spread of the disease from the tops downward after they had been inoculated by aphids. We also found large numbers of suckers and water sprouts on the older trees develop the disease after the aphids visited them and rapidly die.

In many cases, when the disease reached the base of the water sprout or sucker it entered the limb or trunk on which the shoot grew and there formed a canker, sometimes large and spreading, if the bark was juicy, and sometimes small. The bark immediately surrounding such cankers is liable to harbor the disease germs through the winter, then in the spring, when the sap begins to run once more, the germs rapidly develop, spread

Shot-hole borings in a healthy branch from a young pear tree. In every case they are at the base of a fruit spur or small branch. Around three out of five of the punctures the blight was spreading as a canker.

further through the bark, thus enlarging the canker, and often girdling the limb, which results in its death.

THE DISEASE IN NURSERIES

We found aphids to be the principal means of spreading the blight in apple tree nurseries. Wherever in nurseries the aphids were kept in check there was practically no blight. While in the nurseries in which the aphid was allowed to have its way, there the blight flourished in all directions.

While aphids and "twig blight" are both common on the apple, neither are very prevalent on the pear. Blight, however, kills off many more pear trees than apple trees. How, then, is the blight carried to the pear trees? It is sometimes carried to the blossoms by bees and wasps, and it is such inoculations that are responsible for most cases of "twig blight" in the pear. "Body blight," however, is more common than "twig blight" in the pear. This is the same disease working in the bark of the trunk and larger limbs. The germs sometimes enter it at the base of the twigs which have been inoculated at the blossoms. We found, however, during the last two seasons cases of direct inoculation into the bark of healthy trees made by the fruit-bark-boring beetle (Scolytus rugulosus).

This is the same beetle that works in the bark of the peach and cherry, causing them to exude large quantities of gum-like material. The pear tree does not exude this gummy material, and as the hole made by the beetle is very small and is usually underneath a bud or spur, it is not readily seen. This beetle bores in the bark and is more common on weak or diseased trees than on healthy ones. We found the beetles in the bark of blighted trees to be literally covered with blight germs, and we found the disease to be developing around the fresh punctures made by these beetles in the bark of healthy trees. The fruit-bark-boring beetle is one means of spreading the blight among pear trees.

The pruning-knife, saw, chisel, shears,

harrows, cultivators, and other tools used in the orchard, after coming in contact with a diseased tree, are potent carriers of the disease. We have seen numerous cases of blight that could clearly be traced to this source of infection; and we proved in a number of experiments how easy it is for the disease to spread in this way.

After using a saw on the diseased part of a tree and then on the healthy tree, niching the bark or cutting off branches, we found that in seventy-five per cent. of the experiments the healthy tree contracted the disease at the point cut. Scraping healthy trees with diseased trees when removing the latter from the orchard is also a common method of inoculating healthy trees.

ERADICATION AND PREVENTION

When once the disease enters a tree, whether it be in the fruit, twig, branch, or trunk, there is no remedy for the affected part. The only measure to be adopted is to cut out and burn it right away. To cut off an affected twig will save the branch on which it grows, and to cut off a diseased large branch will save the tree.

In cutting dead or diseased tissue from a tree, care must be taken to cut from six inches to a foot below the blighted area, as the germs always extend further than the visibly affected part. Whenever the pruning tool comes in contact with the disease in pruning operations, it should be disinfected by being wiped with a disinfectant, as corrosive sublimate, 1-1,000 parts or 10 per cent. formalin. These may be carried in a glass bottle. If a wire is run through the cork so as to project into the bottle, and a piece of rag tied around the end of the wire, this may be used as a convenient swab for applying the disinfectant.

The best time to cut out blight is the first time it is seen, as every case of active blight is a potent source of infection for innumerable other cases. However, it is not always practicable to locate every case of blight as it occurs. The best time for systematic action in an orchard is in late fall or early winter. At this time the diseased parts are more readily noticed than in late winter or early spring; and if precautions are taken to burn the material out, this will ensure the destruction of the beetles, aphids, and other insects harboring on and in it.

If an orchard be cleared of the blight during the winter there will be no germs there for insects to get contaminated with in the following spring. Hence, as the bees and wasps go from flower to flower they will not infect the blossoms. The blossoms not being inoculated, there will be no early twig blight; so that when the aphids come later in the season, there will be no source of infection for them.

If, however, there should be affected trees in the neighborhood of the orchard, which is usually the case, then the only way to keep the disease out of the orchard is to control the insects.

The aphids may be kept in check by spraying the trees when the buds are just beginning to swell with home-boiled lime-sulphur, preferably of the strength of twenty-five pounds lime, twenty pounds sulphur, to forty gallons of water. This is to kill the eggs which may be seen on the twigs and small branches of the tree. To destroy the aphids in summer, give them a thorough drenching with kerosene emulsion. In the fall observe if any aphids are present on the water sprouts, where they will be found, if there are any on the trees at this time of year. If present, cut off the water sprouts and destroy them.

Several bad outbreaks of the fruit-bark-boring beetle in peach and cherry orchards have been traced to wood piles made from diseased and dead wood taken from the orchard. It is in such wood that beetles winter. In the spring they issue from it in large numbers and make their way usually to the orchard once more. This shows the necessity for burning before spring the dead and diseased wood taken from the orchard.

Several orchards, that two years ago were badly infected with blight, are now after being carefully treated as above outlined, free from the disease. It now will be a comparatively easy matter for the owners to keep their orchards free from the disease by making an occasional inspection during the growing season and cutting out the fresh inoculations that are brought by insects from neighboring property.

W feel certain that if concerted action such as indicated be taken by all fruit growers in any district, the disease may be wiped out of that district and be prevented from entering it again.

Cover Crops in the Orchard*

Prof. W. S. Blair, Macdonald College, Que.

The following experiment in orchard management proves that the soil moisture conditions can be controlled more effectively by the date of seeding than by any particular cover crop. Crimson clover was sown on June 15th and on July 15th. The soil samples taken on the first of September showed six and one-tenth per cent. of moisture for the early seeding as against twelve and three-hundredths for the later seed plot. These results are what one would expect, and the date of seeding advisable for different sections and different types of soil can be determined only by conducting similar experiments in your section. After conducting various tests we have settled on the last of June or early in July as the most suitable in our section for ripening young trees.

If trees are carrying a good crop of fruit there is little likelihood of the wood not ripening well, and it would be unwise to dry out the soil too much by early seeding of the cover crops. For this reason, I advise later seeding in the bearing orchard, say the middle of July. It is well also to keep in mind that cover crops have a much more rapid growth in a young bearing orchard where there is little shade than in an old one heavily shaded, and the transpiration in protected areas is not nearly so great as in the unprotected.

THE QUESTION OF MOISTURE

While a cover crop may dry out the soil early in the season that does not imply that the soil will continue dry until late fall and injuries from dry winter freezing result. Our experiments go to

*This article is continued from the December number.

A House of Apples Shown at the Ontario Horticultural Exhibition

One of the most striking features of the recent Ontario Horticultural Exhibition in Toronto, was the house of apples shown by the fruit growers of Northumberland and Durham Counties. Their exhibit is here illustrated.

show that when a dense covering is formed it so protects the soil that little evaporation takes place in the late fall and the ground by fall will actually contain more moisture than the areas not so covered. Winter killing of the root is more liable to occur in a dry soil. This is not of special consideration in northern sections only, for winter killing is often caused by alternate freezing and thawing, which has greater range in a somewhat dry soil than in a moist soil, for the more water a soil contains the less liable is it to frequent alternate freezing and thawing.

A View of a Portion of the Display of Apples at the Recent Exhibition at St. John, N.B.

Cover crops were first used for the purpose of keeping frost from penetrating the ground and at the same time prevent alternate freezing and thawing. It will prevent the latter as we all know from experience, and experiments go to show that a moderate mulch on the surface will keep the frost from penetrating less than half the depth that it will on unprotected areas. The frost penetrating the soil may not prove injurious, but alternate freezing and thawing must be guarded against.

PLOWING UNDER NOT ADVOCATED

It is usually not advisable to plow under a cover crop in the fall. There is much less liability to washing off the surface soil, and the mulching effect is better if it is on the surface. It also serves to hold the snow, which is one of the best protective covers we can have.

Personally, I think it does not matter whether the cover crop stands the winter or not. In fact the only advantage that I can see in having one that will stand the winter is to dry out the ground early the following spring. The danger, however, is that we may allow them to grow too long before plowing under and rob the ground of much moisture that might have been conserved, and as well deprive the tree of its full early spring breakfast.

The following experiments which I personally conducted show the effect of winter rye and Red clover in reducing the moisture contents of the soil as compared with the early cultivated crimson clover plot. A plot of oats sown on an adjoining plot on June 20th was also compared as to the percentage of moistures at different dates. These plots showed how quickly the moisture contents of the soil can be reduced by crops in the orchard in the spring and early summer months.

Date Samples ee were taken.	Winter Rye	Date sown June 20	Crimson Clover plowed under May 13	Red Clover not plowed
May 12 . . .	.18.41	20.	20.88	18.93
May 26 . . .	.17.21	18.02	21.21	18.97
June 9 . . .	.12.52	17.84	20.31	14.04
June 23 . . .	.10.46	17.40	20.46	11.65
July 7 . . .	9.06	16.70	19.14	11.22
July 21 . . .	7.46	13.43	20.54	12.06
Aug. 4 . . .	8.23	9.49	18.11	10.36
Aug. 18 . . .	9.80	10.30	20.26	13.66
Sept. 6 . . .	.17.79	16.99	24.04	20.22
Sept. 20 . . .	.14.91	16.31	18.09	19.87
Oct. 31 . . .	.21.33	19.77	26.02	19.71

The clover plot was given clean culture and no cover crop was used on any of these plots. The fall was a moderately wet one and these plots each contained approximately twenty per cent. of moisture, which amount our experiments indicate is about right for the most successful wintering of the tree. One of the bad effects of drying out the soil early in the spring is that the subsoil water is lost, whereas it should be retained for the crop later on, as it is this water on which the crop depends later in the season. The tabulated data shows only the condition of the soil to one foot in depth, but soil to a greater depth would show as great a variation.

It is advisable, except in cases where the ground has an excess of nitrogen, to use leguminous cover crops. The Crimson clover and common vetch we prefer. Both of these make an ideal cover. The math is not objectionable at picking time and it forms a good protective covering. We find that the clover can be worked under with greater ease and for that reason we use it principally. The two mixed together are good.

Red clover does not make sufficiently rapid growth in my opinion and we do not use it except in our comparative tests. We get a much better protective covering with th crimson clover, and a very much greater bulk of material to turn under. A mistake is often made in using too little seed. Never use less than twenty-five pounds of Crimson clover and seventy-five pounds of vetch seed per acre.

SEEDING CLOVER

In seeding to clover we run over the ground with a tilting spike tooth harrow, sow the seed and harrow with this tool again having the teeth upright, and again harrow with the teeth tilted to leave a perfectly smooth surface. The seed can be safely worked in to a greater depth than is the case with the smaller Red clover seed. In seeding vetch I prefer to use the springtooth harrow which leaves the soil more in ridges and after seeding this is again used, followed by the levelling harrow.

I have never yet had any difficulty in getting a good catch from seeding on a properly cultivated area. If this ground is thoroughly dried out on the surface, there may be trouble, but in such cases I would advise working in the seed more deeply.

One of the best of the Japanese plums for long distance shipping is Ogon.

The Little Peach Disease

L. Caesar, B.S.A., O.A.C., Guelph, Ont.

During a recent trip to the peach districts of Michigan to investigate the disease known as Little Peach the writer gained the following information:

Little Peach is a very destructive disease; and in the opinion of the majority of Michigan growers is several times more destructive than Peach Yellows. Wherever affected trees have been allowed to remain the whole orchard, as a rule, has become hopelessly diseased in four or five years. An expert grower stated that he had himself seen more than 100 orchards thus destroyed.

So far as known, no variety of peach tree is exempt. Japanese plums are subject to the disease. The writer saw three plum orchards with several of the trees attacked by Little Peach.

Little Peach attacks trees from two years of age upwards. (This is also true of Yellows.) The disease has been successfully controlled in Michigan and other places, but only by the removal each year, as soon as possible, of all clearly diseased trees and also all suspected ones. It is absolutely necessary to remove the suspicious cases as well as the clearly diseased. Co-operation in control measures is necessary, and, where orchards are close together as in Ontario peach districts, is imperative. No person can thoroughly control the disease in his own orchard by the removal of diseased trees if his neighbor only a few rods away fails to remove his. If, however, the orchards are half a mile or more apart one may hope to be able to keep his own orchard fairly free from the disease even independent of his neighbors. Where trees have been removed because of the disease young trees may, if desired, be set in the same place next spring. Such trees are not any more subject to Little Peach and Yellows than any other trees in the orchard. (Prof. Waite of Washington, D. C., Prof. Blake of New Jersey, and several others agree with this statement.)

CAUSE UNKNOWN

The cause of Little Peach (or of Yellows) is not yet discovered. It is not definitely known in how many ways the disease may be spread. It is probably first brought into a district on nursery stock and once in the orchard it spreads from one tree to another, but just how no one knows. Many think that the time of infection is during the blossoming season.

The disease can be propagated by budding, as has been proven by Dr. Smith and Prof. Waite in the case of Yellows. Mr. Horace Welch, who is said to be the best expert on the disease in the State, took more than 200 buds from trees showing symptoms of Little Peach, and inserted some in young seedlings and others in healthy trees, but in every case the disease developed, but not until the second year, and in some cases the third year.

Whether the pits from Little Peach will grow and produce the disease is not yet proven. (Prof. Philips of Virginia, believes a small percentage of them will do so.) The ordinary system of inspection for Yellows (as practised in Ontario) is not sufficient for Little Peach, as this disease often does not show in trees until the latter part of September. Therefore, inspection work should continue up to the coloring of the leaves by frost. It is not an infrequent occurrence to find trees with all the symptoms of Little Peach except that the fruit ripens somewhat prematurely or at latest at the normal time. Such fruit shows no sign of Yellows. This is possibly an abnormal case of Little Peach and Yellows attacking the tree at the same time. Whatever be the cause these trees must be destroyed just as if they had typical Little Peach or Yellows.

In some districts in Ontario Little Peach has already caused the loss of several orchards and of many trees in nearby orchards. No chance should be given it to make further progress; therefore, every grower is urged to destroy AT ONCE every tree marked by the inspector and every suspected tree. It is very important not to let them remain in the orchard till next spring. There is no use in hoping for the recovery of trees; they never recover from this disease.

Shrub Hedges

A. K. Goodman, LL.B., Toronto, Ont.

The best of the garden is what you put into it rather than what comes out of it. It is the satisfaction of your tastes and the bettering of them, the thought and sentiment you express in planting and gathering, the innocence and quiet of mind that you take to the seeding, trimming and watering that are the real rewards.

The winter is the season to take stock of your yard conditions, the reflecting period when your plans are matured for its improvement in the spring. Have you thought of planting any ornamental shrubs? Do so now—let me recommend from personal experience the despised and neglected snowball, the guelder-rose (Viburn Opulus) with its globose clusters of white sterile flowers, said to be a cultivated variety of high cranberry. It is very hardy, does well enough in any soil and under all conditions, but plant it—attend to it—prune it—feed it, and love it, and the beautiful display of bloom it will in gratitude return will be a source of wonder, pleasure and delight.

Have you a place where a hedge effect is desirable, then alternate with the best known honeysuckle, the Tartarian from Russia—feed and prune them with care and in a few years nothing will surpass the fragrant loveliness of these shrubs in flowers:

"How sweetly smell the honeysuckle
In the hush'd night, as if the world were one
Of utter peace and love and gentleness."
—*Tennyson (Gareth and Lynette.)*

I have also found the lilac or pipe tree and particularly the Persian lilac (S. Persica) an excellent hedge to divide the vegetable garden from the front. The lilac is a widely cultivated ornamental Old World shrub of the genus Syringa of the olive family (Oleaceæ), but notwithstanding its ancestry, how do we find it in Ontario? Everywhere sadly neglected, untidy, scraggy, its suckers occupying and spoiling the ground for some feet around the bushes. Try this method, plant a lilac hedge—feed it—prune it for form and flowers—cut out the suckers, and note the great panicles of fragrant bloom it will produce in quantity and quality. I challenge all exotics to excel these flowers in pleasing perfume.

A Portion of a Prize Winning Garden in the Earl Grey Garden Competition, Ottawa

The Illustration shows a Tartarian honeysuckle and Snowball Hedge in the grounds of Newton J. Kerr, City Engineer, Ottawa.

January Notes for Amateur Flower Growers

Frank Wise, Peterboro, Ont.

January is the month when both the professional and amateur gardener can take a little time to review their work of the past year and lay plans for another. No matter how successful the gardener is he can always see where he has made mistakes and lay plans to avoid them in the future. Then, also, no gardener, however small, can get along without experimenting to some extent. We can benefit partially by other people's experience, but conditions vary. This is especially noticeable in the different kinds of soil. Fertilizers that will help a crop in one field will act the very opposite in another, producing the same kind of crop. Especially is this the case in the heavy clay soil. Sandy and loamy soils are not so susceptible to an overdose of manure. Being porous, they can cast off any surplus matter contained in it.

If you are going to make any changes to your home grounds now is the time to make a plan, as it is far easier to work when you have a sketch before you. This is especially true if there are more than one employed in the work. It will then not be necessary to leave such constant instructions with your workmen, which oftimes are misunderstood or forgotten, as a reference to the plan will ensure against mistakes.

You can also draw a diagram of your kitchen garden, assigning the position for your separate crops, leaving space for new varieties. This you will find very convenient as then you will not have all your garden planted and find that you have forgotten some particular crop and have to sow it between the rows of some other crop, or sacrifice some of what has been sown.

Do not forget to take the advice given in last month's issue of The Canadian Horticulturist, regarding repairing and replacing all tools.

HOUSE PLANTS

Your house plants will require attention to keep them from going back. It will be necessary to watch the watering very closely and not to overdo it. Some of the readers of The Canadian Horticulturist will have received plants for Christmas presents. Most of these plants come from the florists and will require special care as greenhouse and house conditions are as a rule entirely different. Greenhouse plants are used to a moist atmosphere, which gives the foliage a soft tender appearance. This is especially so with a great many plants at this time, as the florist has been using a little more heat and moisture to get the plant as near perfection as possible, so as to demand the highest price obtainable.

A good way to treat such plants is to give them as nearly as possible the same treatment they have been getting in the greenhouse. Syringe them with tepid water once a day. This is better done in the morning as it allows them time to dry off before night. Do not subject them to too great a change in temperature, but give them as near 60 or 65 degrees of heat as possible. Last, but not least, do not water them until the earth will crumble in your fingers, then moisten them thoroughly. Do not allow the water to stand continually in the saucer. If these instructions are followed, you will be more likely to keep your plant alive instead of consigning it to the ash-heap in the back yard in a week or two.

A Silver Trophy Flower and Vegetable Garden, at Montreal West, Quebec

This garden owned by A. P. Horner, of Montreal West, now of Calgary, Alberta, won the first prize in 1909, in a garden competition conducted by the local horticultural society.

Examine your palms and ferns for scale. A little soapy water applied once a week will prevent the attack of this insect, and will also be beneficial to the health of the plant.

Most house plants will be benefited by a little fertilizer in some form at this time as it will encourage bloom in flowering and growth in foliage plants. Should you not have any of the plant foods advertized, a mixture of one part of nitrate of soda pulverized, three parts bone flour, and six parts Harris' Blood and Bone can be used, giving a tablespoonful to a four-inch pot and stirring it into the top half inch of soil with a pointed stick.

TREATMENT OF PALMS

The house treatment of palms is very simple and takes but little time. If you have received some palms as a gift, you must consider where your plants came from. A palm house is kept at a humid temperature of from 60 to 70 degrees, and the plant receives a syringing every bright day. This need not be done to your palm until it has become accustomed to its surroundings. It must be moistened twice a week for a few weeks, after which once a week will do. A good plan is to take it to the sink and give it a shower bath with a small watering can. A frequent sponging with soapy water will be beneficial.

Do not water until the plant becomes dry. Most palms do not dry out very quickly owing to having been fresh potted or having poor drainage. If when watering the water should remain on the top of the pot, the earth has either become baked or the drainage clogged. To overcome this, take a pointed stick and loosen the top earth in the pot. Turn up your pot and clean out the hole left for drainage by pushing your stick two or three inches up into the pot. If this should not remedy the trouble it will be as well to turn out the plant and take the old drainage material out (if it has any). Wash it and place it back again. Palms should not be repotted too frequently. They will often remain in one pot and thrive for years if given a frequent watering with manure water or a little concentrated plant food.

Look over your winter bulbs that were potted and placed in your cellar. Some of them may require watering. Bring up any that are making growth and treat them as advised in the last issue of The Canadian Horticulturist.

Treatment of Narcissus

What would you recommend to do with a giant white narcissus bulb that has been grown in pebbles and water since last fall and that flowered at Christmas? How long should it be kept in water?—R. McL., Stratford.

Narcissi bulbs which have been grown in pebbles and water as mentioned are of very little use for flowering purposes again, as this method of growing weakens the vitality of the bulb. If allowed

to dry off gradually and the bulb placed in dry sand or soil and kept in a cool place until spring, it might be planted in the open ground, where possibly it might recover in the course of a year or two. As a rule, however, they scarcely give returns to repay for the trouble.—Wm. Hunt.

The Classification of Trees and Shrubs

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

WHAT promises to be a really systematic attempt to name and arrange the trees and shrubs in their natural orders in the Queen Victoria Niagara Falls Park will be made in the near future. The naming of the various subjects has already commenced. This most important phase of park work, although of great value, has been neglected hitherto in Queen Victoria Park and in many park systems.

It is of great advantage to people who visit our public parks to be able to ascertain the names of any trees or shrubs, which they may desire for planting purposes in order to beautify their own homes or property, without their having to take the trouble of enquiring the names from the superintendent or his assistants, whose services at that time may not be available, or of asking some of the employees who may give a wrong name, thus sending the enquirer away with erroneous information.

From a nurseryman's standpoint, also, the naming of trees and shrubs in our parks will be of great advantage. In many instances customers, when ordering from the nursery submit names or descriptions which are very vague and cause a great deal of trouble to define and select the subject desired. Thus if the trees and shrubs in the public parks were named correctly this unnecessary worry could be largely avoided.

As an educational feature, this line of work is worthy of serious consideration, as to students of botany, or others who desire information upon the subject, the proper classification of the subjects which beautify our parks will prove of incalculable value. It will prevent the unnecessary spending of valuable time in looking up references which are in many cases obsolete.

An Inexpensive Type of Label

The system that has been adopted in Queen Victoria Park is similar to the one in vogue in the Royal Botanic Gardens of Kew, The Edinburgh Botanic Gardens,

A Simple Label for Use on Trees

and I believe also at the Glasnevin Botanics in Ireland. A sheet lead label, five inches by three and one-quarter inches is used and bold type letters, one quarter of an inch in height, are stamped into the surface of the lead by means of steel dies, causing depressions into which white lead is rubbed with a piece of cloth, the letters thus showing up white upon a dark background. The label being almost the color of the bark of a tree, is hardly noticeable, but the letters stand out in relief and are easily distinguished even at a distance of six or eight paces.

The label itself is practically indestructible and only requires cleaning every second year. This operation is not difficult as the letters simply need repainting. This can be done while the label is attached to the tree, or it can be removed and the necessary painting done in winter when it is too cold or wet for outdoor work. All the materials necessary are a quantity of white lead and a piece of cloth or a sponge. It is also desirable to oil the labels at the same time. The accompanying illustrations show the different methods of attaching the label, lead or aluminum wire being used for this purpose, and also the manner in which the Natural Habitat, Natural Order, Genus, Species, and common names are printed. The method of fixing the labels to iron stakes for use in beds and borders, is also illustrated.

While passing through several city parks, I have noticed the unsightliness of the labels which sometimes are attached to the trees. Some of them being so large they gave the impression that the tree was planted purposely to support the label, instead of the latter being intended to indicate the name of the tree. The whole arrangement is almost as hideous as the advertising signs one notices nailed to the trees on the highways at the various city aproaches. It is just as easy to procure a neat label, that costs no more than the glaring enamel signs which are not only unsightly but in many cases so attractive that they furnish an excellent target for the average small boy

The Care of Tulip Bulbs

R. G. Yule, Toronto, Ont.

In the November issue of THE CANADIAN HORTICULTURIST I noticed a short article entitled "The Cultivation of Tulips." I do not agree with the writer when he states that tulips should not be grown two years in succession on the same piece of ground. I claim that no injury will result from letting the bulbs stay in the ground year after year.

The authorities of the Nashville, Carolina, Mission School grow the finest of tulips. I have seen photographs of beds there the flowers in which had not been raised for four years. The bulbs in the long beds in front of the Parliament Buildings, Toronto, are not changed as the writer says they should be. And yet there are no finer tulip beds to be found than the Queen's Park beds.

Some of the finest tulips I ever had grew from one red tulip bulb I picked up and planted five years ago last spring. It was in the bed for five years and I took out a capful of bulbs then.

A Ceder of Lebanon
At residence of Mr. S. A. Knight, Victoria, B.C.

Some Gardens and Gardeners in the Old Land*

Miss M. E. Blacklock, Toronto, Ont.

A LOVER of gardens and gardening can have no greater treat than a visit to the Mother Land. The love of flowers and indeed of beauty in any form seems inherent in the people, and equally so is the love of neatness and order.

There is little of the slovenliness in England that there is in Canada. From the delightful little railway trains one gets a back view of many houses, just as we do here from our trains, but there is a vast difference in the outlook. There you see prettily walled gardens, the walls of either brick or stone, containing vegetables in neat little beds, or flowers, or still more frequently, a happy combination of both, with the inevitable climbing rose on the house wall. Not one here and there, but all, with very few exceptions, are pretty, with everything to please and nothing to offend the eye.

We all know, to our sorrow, what the view from our train windows chiefly consists of, when passing anywhere near the haunts of man. Wherever there are buildings, scrap heaps, ashes, tin cans, and rubbish of all kinds obtrude themselves upon the sight and we have not even the grace to plant a Virginia Creeper or sow a handful of Nasturtium or Morning Glory seed to drape their hideousness. There are, of course, a few exceptions, but they are deplorably few. Do we realize the importance of first impressions, I wonder? Surely if we did, we would start a crusade of improvement along our railway tracks.

RAILWAY GARDENS

The grounds around the English railway stations are most attractive. For the most part they are beautifully laid out, with shrubs, trees, and flowers in every nook and corner. In the country parts the stationmasters take great pride in their gardens and many of the railway companies give prizes for the best kept station grounds, with the result that every little way-station is a blaze of flowers. They do not use geraniums or "bedding" plants for these grounds, but hollyhocks, Madonna Lilies, roses, campanulas, iris, and many other hardy things and a great variety of annuals.

The planting was not confined to one spot. Wherever there was any earth, if it was only a foot square, something was made to grow in it. Quite often narrow borders, a foot or two wide, were all the space that was available, but those little borders often vied with the larger ones in beauty.

The public parks and gardens are also walks with shrubs on either side—and such shrubs — hollies, rhododendrons, azaleas, laurels, all with broad evergreen leaves, enough to make any gardener, living in so cold a climate as ours, green with envy. For these shrubs are not only extremely beautiful in themselves, but they make such an admirable background for other things.

Then the trees. Wonderful old oaks with huge trunks and mighty branches, so old that one could easily fancy the Druids had worshipped beneath them and yet so hale and vigorous that they seemed to challenge old Father Time to do his worst. Copper beeches, with a smouldering fire in their leaves. Yews with their green mysteriously veiled in a great source of pleasure to the visitor. One can never forget their beautiful velvety blackness and a host of the most delightful Conifers of all shapes, sizes, and tints, some of them tapering into steeple-like trees, others broad and bush-like, and still others with fringe-like branchlets pendant from their sweeping boughs and graceful as a birch. It would be very interesting to know how many of these could be prevailed upon to take up their abode with us as permanent settlers and not succumb to our winters.

RHODODENDRONS

The flowering shrub of England, leaving roses out of the question, is the rhododendron. For gorgeousness there is not its equal. At Kew there are enormous masses of it which are a wonderful sight when in bloom, but in spite of its magnificence—or perhaps because of it —it is not a very lovable thing. One cannot wax sentimental over it as one can over a simple lilac by a gateway, or a bit of gorse on the hillside.

RUINS AND WALLS

Nature does a great deal of beautifying, entirely unassisted, in England, just as she does here, only differently. Every old ruin has its walls or window ledges more or less grown over with various little plants, amongst which the wall-flower makes a wonderfully effective bit of coloring, and one learns why it is provided with such long, flexible, ungainly-looking stems, which are often so ugly when it is grown in pots and beds, but which give it a delightful airiness when we watch it swaying with every passing breeze on some old wall high above our heads.

LEDBURY

The first garden I was fortunate enough to see was in the quaint old town of Ledbury in Herefordshire. From a Canadian standpoint, it was a large garden; from an English one, of quite modest dimensions, the grounds probably being four or five acres in extent, an ideal size, because there was room for magnificent trees, shrubs in abundance, a water garden, a rock garden, and a walled enclosure, for fruit and vegetables chiefly, and yet nothing was crowded.

This garden was so well laid out that you did not realize it was laid out at all. With the "art that conceals art," things seem to have grown in just the right places of their own accord. Here, in a sheltered glade, was a low rocky bed of the choicest ferns, not one of our native ones missing that I am familiar with, except our "Christmas Fern" (Aspidium achrostichoides). Expressing surprise that so handsome a variety had been left out, I was told that it had been tried again and again, but had absolute-

Some of the Lovely Lawns and Boulevards of Chestnut Park Road, Toronto, Ont.

*A paper read at the annual convention of the Ontario Horticultural Association held in Toronto, November 17 and 18.

ly refused to live. Varieties that we see only in our greenhouses grew there vigorously in the open air. That fernery was a revelation of the possibilities of the English climate.

SOME FAMILIAR FLOWERS

A little farther on, the glade opened out sufficiently to have a wide border on one side of the walk—a border which curved with the walk and extended upwards (for it was rising land), into the trees and shrubs. Many old friends greeted the eye in this border and one was introduced to many new ones.

Great clumps of the Wood Hyacinths (Scillas: Hispanica, Nutans and Patula) were very lovely. They have nothing of the Scilla about them in appearance, being like large Roman Hyacinths. They come in various shades of mauve-blue, pale pink and pure white, and are most graceful and very well worth growing. These are really the "Bluebells" of the English woods, improved by cultivation. Trilliums, Foam Flowers (Tiarella cordifolia), Mitre-worts (Mitella diphylla and even the tiny Mitella nuda), and several others of our "woodsy" things made a flourishing little colony in a sheltered nook under the trees.

A ROCK GARDEN

On one side of the wide stretch of grass, which was commanded by the house, lay a square, formal garden some of the conventional beds of which contained magnificent May flowering tulips, others wallflowers, and others polyanthi. Still nearer the house, a path, passing through shrubbery to the right, led to the rock garden, which was a wonderful bit of color in its spring freshness. This you could easily see was the owner's chief delight. He pointed out his treasures with all a connoisseur's pride, and he knew the botanical name and habitat of every one. Many he had brought home himself from the Alps and the Pyrenees and various other places, some so minute that you might easily overlook them, others of more imposing growth.

From the rock garden we wandered into the walled garden, where the daffodils had held high carnival a few weeks before in a long border devoted to their sole use. These must have been a glorious sight, for the choicest new varieties were here in all their expensive—and therefore exclusive—greatness, but when we saw them they were at the very unattractive stage of "lying down." Nectarines, apricots and peaches were grown on the walls, and strawberries and other small fruits in beds.

Passing on, we came upon a woodland path which led across the carriage drive to the other side of the grounds and to a wild garden where primroses and violets had erstwhile flourished and a stream wandered in and out, finally broadening into a good sized lily pond, bordered with graceful hedges, bulrushes and iris, with bamboos nodding their heads over them. Looking through the trees, one could see the deer grazing peacefully in Lord Biddulph's park, which appeared to be part and parcel of these grounds, the low lying stone wall, which separated the two, not being noticeable from where we stood. Crossing a rustic bridge, we came to the drive once more which led past the little lodge to the gate, and so back to the town after a most enjoyable afternoon.

(To be continued.)

Winter Care of Evergreen Plants for Lawns

Wm. Hunt, Ontario Agricultural College, Guelph

THE class of plants that are grown in large pots or tubs and are usually made use of temporarily in summer for outdoor decorative purposes around the house, include many varieties. Some of the most popular are the Japanese Euonymus or Spindle tree, Nerium or Oleander, Aucuba Japonica, Laurisitinus (Viburnum tinus), Myrtle and Bay trees, Orange and Lemon trees, and the English ivy.

Too often in winter these plants are stood away in some hot dry room or in a dark furnace heated cellar, where they get very little attention. The soil in the pot or tubs is often allowed to get dust dry and remain so for a long period. This treatment, if it does not kill the plant, usually results in the foliage becoming so withered and rusty looking before spring that the plant is useless as a decorative plant, until the top growth has been cut back and allowed to start into fresh growth.

The best place to keep the plants in winter is in a cool part of the greenhouse, or a greenhouse lobby, in a temperature of about 40 degrees at night and 55 degrees in the day time. A shaded position where the hot sun does not strike them is best, as they do not require much sunlight in winter, the hot sun—especially toward spring—often burning or scalding the foliage. Next to a greenhouse, the vestibule or porch of a dwelling house will suit them, or a cool room or a light basement or cellar, or even a light root cellar.

IMPORTANT POINTS

The main point to consider in wintering these plants is to keep them in about the temperature before mentioned and as far away as possible from hot, dry, artificial heat. Keep them where the foliage can be sprayed occasionally with clear water. Spraying the leaves every week or two is of great benefit in keeping down red spider and thrip that sometimes attack these plants where the atmosphere around them is of a dry, arid nature. The cooler the temperature beyond actual freezing, the less need there will be of spraying. In spraying, the water should be applied mainly to the under side of the leaves, as this is the part of the leaf they attack. The pests mentioned are very destructive in a dry atmosphere and will soon denude the plant of leaves if not checked. Spraying under pressure is the best remedy and preventive for their attacks.

The soil in the pots or tubs should be kept well moist but not soddened; it should never be allowed to get in a dust-dry condition, or the foliage will suffer. When water is given, give sufficient to moisten all the soil and then withhold water until the soil shows signs of dryness again. This is better than applying a small quantity of water more frequently, that perhaps only moistens an inch or so of the soil and quickly evaporates, the lower roots getting no moisture at all.

INSECT PESTS

In addition to the red spider and thrip before mentioned, the other pests that trouble these plants are the scale insect and the mealy bug. The scale is a small white or whitish brown insect that attaches itself to the leaves and stems of the plant. The mealy bug is of a whitish

Two Flowers

The smaller of these two flowers was grown by Miss Helen Dargavel, Elgin, Ont., and weighed fourteen and one-quarter pounds.

color and, as its name implies, looks as if it had been dusted with meal or flour. The scale is the worst pest of the two.

The best remedy for the scale is to wash the leaves and the stems of the plants affected with a strong soap solution. Soap suds made from common soap will answer, or a solution can be made by thoroughly dissolving an ounce of whale oil soap in one gallon of water, or in that proportion. It is best to dissolve the soap in a small quantity of hot water, then add sufficient cold water to make up the quantity. A moist atmosphere and a cool temperature are the main essentials in keeping these plants free from insect pests and in good condition during the winter.

Insects that Attack Vegetables

L. Caesar, B. S. A., Ontario Agricultural College, Guelph

THE common or bluish asparagus beetle (Crioceris asparagi) and the twelve-spotted red one (Criceris 12-punctata), though comparativey new pests, have already spread over most of Ontario and are causing much loss to asparagus growers. The plants are attacked throughout the whole season, and not only the larvae or slugs but also the adults feed greedily upon them. The two species differ somewhat in their habits, but as the remedy for both is the same, we shall not go into details in regard to the difference.

MEANS OF CONTROL

The best way to keep this pest in check is to spray the plants carefully from both sides after the cutting season is over with three pounds arsenate of lead to every forty gallons of water. The sticker mentioned under flea-beetles should be added and also two or three pounds of freshly slaked lime, the lime being added solely to insure that any excess of sal soda may not act upon the arsenate of lead and cause it to burn the foliage. As this spray does not kill the eggs it will have to be repeated two or three times at intervals of a week or ten days until the plantation is entirely free of the pest.

By this method of destroying the insects the plants get a chance to grow thrifty and to store up plenty of food in the roots for the following spring and fewer beetles will attack them during the cutting season. Of course the poison cannot be sprayed on plants that are being cut, but new plantations which are not cut the first year should be sprayed quite early to protect them.

(2) Chickens and ducks. Where these are allowed to run on the plantation during the cutting season they seldom do any injury to the plants and are very helpful as destroyers of the beetles.

(3) Frequent cutting gives the eggs in the early season no chance to hatch.

STRIPED CUCUMBER BEETLES

Every grower of cucumbers, squashes, pumpkins or melons is familiar with the small beetles, about one-fourth of an inch long, with alternate yellow and black longitudinal stripes on their wing covers. They are often very destructive and are very difficult to combat successfully. The chief damage is done in spring to the young plants just after they appear and when they are least able to withstand an attack. At this season the adult beetles, which winter in the ground or under any good protection are very hungry and during one or two weeks feed very voraciously. At the end of that time mating begins and they become less destructive and more particular about what they eat, often refusing to touch plants with foreign substances on them. The yellow eggs are laid in the soil near or around the roots and if the earth is damp the young larvæ feed on the roots, vines or fruit that may happen to be near them. The new adults that appear later in the season also feed ravenously upon the vines and fruit.

The best means of control are trap crops and spraying. It has been found that the beetles prefer squashes to other kinds of cucurbits, hence before sowing the cucumbers or the regular crop a considerable number of squashes should be sown around the outside of the plantation to attract the beetles. As soon as they appear they should be heavily sprayed every few days with arsenate of lead, three or four pounds to forty gallons of water. When the cucumbers or regular crop comes up, spray it with Bordeaux mixture and arsenate of lead of the above strength, repeating the spray several times until after the vines have begun to run. The Bordeaux is added chiefly as a repellant, since the beetles after the first week or so usually refuse to eat plants covered with it. Bordeaux also helps to keep off the mildew and gives vigor to the plants. Later in the year squashes should be planted and left to attract the greedy new adults. These can then also be sprayed with the arsenate of lead and many of the beetles will be destroyed.

Advantage should be taken of the habit of the beetles late in the fall to congregate in great numbers on old cucurbit fruits and vines, especially where these are gathered into heaps. I have seen the beetles in thousands in such places on frosty mornings. If then the refuse be gathered into heaps after the picking season and on some frosty morning, a covering of straw is thrown over them and set on fire, countless numbers of beetles would be destroyed and the number left for the next season thus greatly lessened.

COVERINGS

A very satisfactory way of protecting young plants in the spring on a small scale is to cover them. For this purpose cut a barrel hoop in two so as to form two semi-circles. Then place one of these over the other and at right angles to it, and insert the ends of both in the ground. Two bent wires will of course do instead of the hoops. The frame thus made

Loading Vegetables and Small Fruit at Sarnia

Immense quantities of early vegetables and small fruits are now produced each year on the south shore of Lake Huron, and shipped by boat to Northern and Western ports. The shipment here shown consisted of 42 waggons of produce, or approximately 100 tons, all grown in Sarnia township

English Hot House Tomatoes, Evans No. 1. The vines grew fifteen feet high and averaged 21 lbs. to the vine.

should be covered over with gauze or some such material and a little earth thrown up around the edge so that no beetles can get under. It must be on the plants before the beetles get any chance to attack them and can be left on until the plants are too large for such limited space. This affords a complete protection but is hardly practicable on a very extensive scale.

(To be continued.)

The Potato Blight

F. F. Reeves, Humber Bay, Ont.

The question of how best to fight the potato blight or mildew is a very difficult proposition. During the past season I tried Bordeaux mixture, using the formula as given in Bulletin 122, issued from the O. A. C., Guelph, 1902.

Copper Sulphate (Bluestone)	4 lbs.
Quicklime (Fresh)	4 lbs.
Paris Green	4 ozs.
Water	40 gal.

The bluestone and lime were dissolved in different barrels. I used an autospray and started as soon as the potatoes were nicely above the ground and sprayed every two weeks after till the potatoes were ready to dig.

On part of our farm celery has been grown every year for over thirty years, and the crops of late years have been as good as any we have ever grown; in fact the celery seems to be better every year. Every year, however, we apply as much manure as can be plowed in.—George Syme, Jr., Carleton West ,Ont.

Experiments with Asparagus*

Prof. C. E. Myers, State College, Pa.

One acre of our experimental grounds is devoted to experiments with asparagus. On one half of this area we are making a variety test of Bonvaletts Giant, Connovers Colossal, Barrs Mammoth, Dreers Eclipse, Palmetto and Argenteuil. Of these Palmetto has thus far proved the most satisfactory, both from the standpoint of yield and quality and from its ability to resist disease.

The remainder of the plat is used for testing the importance of grading the crowns at the time of transplanting. This experiment is being conducted with the varieties Palmetto and Argenteuil. At the time of planting, the crowns were graded into three sizes and two rows of one hundred plants each were planted of each grade, first second and third. At the end of the first year the number of plants which failed to grow were respectively, thirteen, sixteen and thirty-four of the test of Palmetto, and thirty-eight, forty-nine and eighty-five of the test of Argenteuil. These figures are significant, and especially so when we consider the expense entailed in making replantings, as well as the year of time lost and the accompanying diminished growth.

Last year, at the end of the growing season, the growth made by each of the tests was weighed and was thirty-one, twenty-three and fourteen pounds respectively for Palmetto, and fifteen, eleven and five pounds respectively for Argenteuil. The first cutting for market was made this year. The record of the product harvested was twenty-two, twenty-four, and twelve pounds respectively for Palmetto, and thirteen, nine and five pounds respectively for Argenteuil.

In each instance the difference is important. It is especially noticeable between the first and third grades, while the difference between the first and second is less. In one case the yield of the second grade has been greater. The reason for this is unknown, but possibly may be determined later. The experiments seem to show that a person, when establishing an asparagus plantation, could well afford to carefully grade his crowns and discard all except the very best.

OTHER EXPERIMENTS

Some work is being done along the line of seed selection. At present, attention is confined to cabbage and tomatoes. We hope to be able to show how good seed may be produced. The work thus far indicates that there are great possibilities along this line. It is generally conceded that judicious selection offers great possibilities in the improving of our general farm crops. In pursuing this work the important feature to be borne in mind is that the entire plant, and not the individual fruit, should be considered the unit of selection.

To summarize briefly, we may say that these strain tests have shown the need of more care being exercised in the selection of seeds. Whenever plantings are made it is desirable to use several strains from seedsmen considered reliable since in this way we may be reasonably sure of securing a fair crop. New varieties should be tried, but it is unwise to make extensive plantings until they have proved satisfactory under your conditions.

*An extract from a paper read at the recent convention in London, Ont., of the Ontario Vegetable Growers' Association.

Turnip-rooted Celery or Celeriac

A. H. Ewing, Woodstock, Ont

The cultivation of this delicious vegetable seems to have been neglected of late years it is seldom seen in gardens. This is rather surprising as there is no difficulty in growing it on any good soil. It is no more trouble to produce than carrots or parsnips.

It is useful for soups, is very nice boiled like artichokes and served with white sauce, and there are various recipes for fixing it up for salads and other dishes. Try a row or two next season. Prepare plants like other celery and plant on the level, not in trenches; it does not require earthing up.

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H. Bronson Cowan, Managing Director

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909	9,456	January, 1910	8,925
February, 1909	9,310	February, 1910	8,967
March, 1909	9,405	March, 1910	9,178
April, 1909	9,482	April, 1910	9,410
May, 1909	9,172	May, 1910	9,505
June, 1909	8,891	June, 1910	9,723
July, 1909	8,447	July, 1910	9,300
August, 1909	8,570	August, 1910	8,832
September, 1909	8,605	September, 1910	8,776
October, 1909	8,675	October, 1910	8,781
November, 1909	8,750	November, 1910	8,747
December, 1909	8,875	December, 1910	8,662
Total for the year	107,638		108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

EASTERN NATIONAL APPLE SHOW

If the proposal to hold a national apple show in Ontario next fall is to be acted upon, action should be taken immediately. From this time on every week of delay will militate against the success of the show.

To make this show the greatest that the world has ever seen, the enthusiasm of the citizens of Ontario and of the people of the east must be aroused. From the first stroke that is taken to the last this movement must be handled with the boldness that is inspired by the confidence of assured success.

The directors of the Ontario Fruit Growers' Association, upon whom has been imposed the responsibility of taking the initiative, might well decide, as their first step, to call a mass meeting in Toronto of all who are likely to be interested. Representatives should be present from the Dominion and Provincial governments, including Quebec, the city of Toronto, the provincial and local fruit growers and co-operative associations, the county councils representing the fruit districts, the railway and express companies, nursery firms, commission dealers and other similar interests. Reliable information should be laid before this gathering concerning the main features of the great national apple shows that have been held at Spokane, as well as of the recent show held in Vancouver, what they cost to run, how the money was raised and the effect they have had in arousing a greater interest in the growing of fruit and as an advertisement of the fruit growing, resources and possibilities of their sections of country. Accompanying this there should be a rough estimate of the money that would be required to hold a distinctly greater show next fall in Ontario.

Such a gathering would attract the attention of the press all over the country. The fullest possible publicity should be given to the information brought out at it so that the public might realize the importance and extent of the undertaking and its support thus be obtained. To this gathering should be left the responsibility of selecting and appointing the main committee that would have charge of the arrangements for the show, the members of which could in turn select the executive committee from among themselves. The general committee should include representatives from every leading apple district in Ontario and from Quebec as well.

Should this gathering decide to proceed with the arrangements, as we may presume that it would, the Lieutenant-Governor of Ontario might then be requested to issue an official call for the holding of the proposed show, as did Governor Shafroth, of Colorado, for the Apple Congress held recently in Denver, Colorado. This call could be sent to the mayors of cities and towns, the wardens of counties and to every organization likely to be interested in advertising the resources of the province and in attracting immigration.

Following this local meetings should be held in the centres most interested. Toronto might well start off with the appointment of a committee from the city council, board of Trade and horticultural society with representatives from the fruit commission firms and other similar interests. Upon this committee should be imposed the responsibility of raising $15,000 to $25,000, of which $10,000 to $15,000 should be contributed by the city council and the balance by private contributions. Spokane has regularly contributed $25,000 a year to its show.

A definite request for assistance should then be made to the Dominion and provincial governments, after which the fruit districts should be organized, the railway and express companies interviewed and other similar arrangements made. Every step of the movement should be freely advertised both at home and abroad.

These suggestions are made in the hope that a few at least of them may prove acceptable to the directors of the Fruit Growers' Association, who we expect will improve upon them in many ways. In the meantime we must all recognize that the undertaking is a great one, that it is entirely feasible and that its successful completion will enthuse the fruit growers of Ontario and Quebec as nothing else could. At the same time it would advertise our resources to the world and thus should attract hundreds of thousands of capital and thousands of settlers to the fruit districts of eastern Canada.

INSULT TO INJURY

Ontario fruit growers of late have begun to wonder how it is that ninety out of every one hundred well-to-do British settlers who enter Canada to take up fruit growing pass by the great fruit districts of the east, as though they had never heard of them, and proceed direct to British Columbia. There they buy land at considerably higher values than land equally as good can be purchased for in Ontario. Eastern growers have even felt rather aggrieved over the situation. But now a worse thing is happening. During the past few months the Central Okanagan Lands Limited of Kelowna, B.C., has actually conducted agencies in Montreal and Ottawa. They have displayed excellent samples of their fruit and illustrations of their orchard land and are creditably stated to have sold some three hundred thousand dollars worth of fruit lands to Canadians in the east. They even ran an excursion of eastern investors to the Pacific coast province. We presume that the next we will hear is that they have opened branches in the Niagara District and that they have induced our leading Niagara District growers to sacrifice their fruit lands in order that they might make investments in the west.

The fact is that our eastern growers are very, very much asleep. If they do not awake soon they will have the boots stolen off their feet. The Ontario government also is dozing. The possibilities for a development of the fruit interests in Ontario are enormous. And yet practically nothing is being done. Why then should we wonder over British investors passing us by?

One of our prominent and best informed government officials, who is acquainted with conditions both in the east and in the west, informed us recently that there is no reason why large areas of land in the Niagara District could not be irrigated from the Welland canal. The expense would be trifling compared with similar undertakings in the west. Such an opportunity in the west would have been seized long ago. We venture to say that were lands in the Niagara District developed in this and other similar ways whole colonies of British settlers might be located on them as is being done in British Columbia. What has been

said applies with about equal force to the other excellent fruit sections of Ontario.

The British Columbia growers deserve their success. They have overcome great difficulties. They have good fruit lands and they are making the fact known to the world. Their government is backing them up energetically. In time our Rip Van Winkles in the East will come to life but in the meantime it is a shame to disturb them.

A GREAT VICTORY

Fruit and vegetable growers especially but many other classes of the community as well may well congratulate themselves over the great victory that has been won, through the Board of Railway Commissioners, in regard to express rates. The decision of the board is the most important it has ever issued. It supports practically every contention made by the fruit growers when they gave evidence before the commission. The tariffs are declared to be too high and must be reduced, fruit rates between Ontario and the west must be lowered, carload rates must be provided between all points where fruit and vegetables move or are likely to move, existing forms of contract are unfair to the shippers, the graduated charges on express freight are unjust. Both companies must fyle new tariffs within the next three months.

Until the new tariffs have been settled it will be impossible to decide how much this victory is going to mean to the fruit and vegetable interests. The development of the fruit trade with the west is certain to increase greatly. Hundreds of thousands of dollars a year more will remain in the hands of the growers. Fruit and vegetable growing will be made more profitable and in consequence a certain increase in production will follow. Together with these benefits must be considered the effect this victory will have in encouraging growers to further unite, even more effectively than they have in the past, in pressing for additional reforms—not necessarily only in railway and express matters but in other directions as well.

Each year the directors of the horticultural societies in Ontario have to face the problem of how they can make their premium lists most attractive, within the limit of their funds, as well as how they can make their meetings more interesting and their exhibitions of greater educational value. Valuable information bearing on these points is brought out each year at the annual convention of the Ontario Horticultural Association but lack of time precludes these matters being discussed as thoroughly as their importance deserves. There is an opportunity here for the performance of good work by the superintendent of horticultural societies. Arrangements might be made with the different societies for the purchase of enough additional copies of all printed material they issue to make it possible to have a copy of each mailed to the secretary of every horticultural society in the province. The expense would be trifling. The benefit derived would be great.

The British Columbia government, not spasmodically, but regularly and persistently exhibits large quantities of British Columbia fruit at the leading Old Country exhibitions. Its main object is not to procure more markets for its fruit but to secure well-to-do settlers for its undeveloped fruit lands. It is succeeding. The tide of immigration to the west, past the fruit lands of the east, proves this. By and by the east will decide to do something.

Quebec Fruit Growers Discuss Matters

The annual meeting of the Pomological and Fruit Growing Society of the province of Quebec was held at St. Hyacinthe, Que., December 6 and 7. It was attended by many of the leading authorities on fruit growing in the province. The general attendance also was large. Among more prominent people present were Prof. W. S. Blair, of Macdonald College; Dr. C. Gordon Hewitt, Dominion Entomologist; W. T. Macoun, Dominion Horticulturist; R. W. Shepherd, Como; N. E. Jack, Chateauguay Basin; Robert Brodie, Notre Dame de Grace; Rev. H. H. Dickson, Rectory Hill; J. C. Chapais, St. Denis en Bas; Rev. Fathers Leopold and Oliver and Brother Ligouni, of La Trappe; J. M. Misch, M. Byers, Geo. Roach, S. Crawfield, of Abbotsford; Archie Ferguson, Montreal and Peter Reid, secretary, Chateauguay Basin.

FRUIT EXHIBIT

There was an excellent exhibition of winter fruit grown in the province, comprising a large number of cases and barrels of apples and other fruit, as well as over a hundred plates of fruit. There was a large exhibit from the Dominion Department of Agriculture, showing the products of different districts of Canada, while the Central Experimental Farm at Ottawa sent thirty plates of choice fruits, most of which had been grown from seedlings.

Gratifying Results

"The results from our advertisements in THE CANADIAN HORTICULTURIST during the past four years have been most gratifying.. The success of THE CANADIAN HORTICULTURIST as an advertising medium is essentially correlated with the excellence of its reading matter, which is appreciated by every intelligent and progressive horticulturist."—Dominion Offices of The Potash Syndicate, Toronto.

OFFICERS ELECTED

The following officers were elected: Hon. patron, Hon. Sydney Fisher, Minister of Agriculture; hon. president, G. Reynaud, La Trappe, Que.; hon. vice-president, Prof. W. S. Blair, Macdonald College; president, Rev. R. H. Dickson, Rectory Hill; vice-president, C. P. Newman, Lachine Locks; secretary-treasurer, Peter Reid, Chateauguay Basin.

Directors:—G. B. Edward, Covey Hill; E. A. Russell, Abbotsford; G. P. Hitchcock, Massawippi; A. D. Verrault, Village des Aulnaies; Auguste Dupuis, Village des Aulnaies; Robert Brodie, Montreal; Dr. Grignon, Ste. Adele; H. W. Thompson, Hudson Heights and N. E. Jack, Chateauguay Basin.

Executive Committee:—Prof. Blair and Messrs. R. W. Shepherd, C. P. Newman, N. E. Jack, Rev. R. H. Dickson and Peter Reid.

In regard to the appointment of delegates to the Dominion Fruit Conference, next year it was decided that the president and secretary of the association should be delegates ex-officio, and that five others should be sent, including Messrs. Chapais, Dickson, Shepherd, Brodie and Jack. It was also decided that the executive might appoint Mr. Byers and others to attend as representatives of the association apart from the Government invitation.

The usual summer meeting next year will be held at Inverness during September.

PRESIDENT'S ADDRESS

Prof. Blair of Macdonald College, in his presidential address gave a resume of the years' work in fruit growing. He dealt carefully with the surface cultivation, pruning and spraying, and estimated that it would cost at least $30 a year to keep an orchard in good fruit producing condition. With such treatment he computed that the average profits during the first fifteen producing years should be between $50 and $80 an acre, while after that when the trees had reached maturity, the profits should double that amount.

PEAR CULTURE

Mr. W. T. Macoun gave an elaborate account of pear culture in Quebec Province, reviewing efforts in this direction from the earliest available data. These records showed that pear culture had not been a commercial success in the province, mainly owing to climatic conditions, but also in some degree to the choice of unsuitable varieties. The only variety which had been shown to succeed to any marked degree was the Flemish Beauty.

A paper was read by Mr. L. V. Perron, a student at Macdonald College, on "Orchard Spraying." He went into the details of machinery, spraying mixture, pumps, nozzles and time for spraying, and showed the great improvements that could be made in the productivity of orchards by such treatment.

Prof. Lochhead, of Macdonald College, also read a paper on "Fruit Spurs," giving a study of twig life, and showing the effect of such study on the proper pruning of different varieties.

At the night session an address was given by Dr. C. G. Hewitt, Dominion Entomologist, on "Insect Enemies of Fruit," in which he enumerated the most common pests, and gave advice as to the best methods of exterminating them.

Father Leopold, of La Trappe, read a paper on how to set out an orchard, soil preparation and pruning methods.

Mr. R. W. Shepherd, of Como, described a trip through the Okanagan Valley, Kelowna, and other famous fruit growing districts of British Columbia. Although the results obtained were marvellous Mr. Shepherd did not consider the fruit of equal quality to that produced in Quebec province, although it was generally larger.

COOPERATION

The advantages of cooperation were pointed out by Mr. R. Brodie, of Montreal, who showed what fruit growers in portions of the United States and in other parts of Canada had accomplished by united effort. Mr. Brodie urged the adoption of cooperative efforts in Quebec but after considerable discussion it was decided that the apple and other fruit growers of this province were too scattered and too prosperous to want any cooperative aid. Quebec, it was declared, had several special advantages. First, it grew such apples as the Fameuse and MacIntosh Red, which were famed all over this country as well as in England, for their unapproachable flavor, and as a result growers this year were able to get four and five dollars a barrel for No. 1 apples. And in addition to this the apple growers of the province not only had the Montreal market anxious to get their best fruit at fancy prices, but had half a million people along the lower St. Lawrence eager to buy their second fruit, at prices which could be secured nowhere else in Canada.

Mr. Shepherd reported that the exhibit of Fameuse and MacIntosh Red apples at

the recent Vancouver Apple Exhibition had taken first prize as a whole exhibit while all the Fameuse exhibits had won first prizes.

Mr. Brodie claimed that owing to their cooperative methods the apple growers of the Okanagan Valley and other fruit districts of British Columbia had secured a lot of good publicity, and it was time the apple growers of Quebec made it known that they could grow fruit which was really unrivalled, both for appearance and flavor.

Mr. W. T. Macoun stated that arrangements were being made to cooperate with the Maritime Provinces to secure a standard form of judging apples, so that in future exhibitors would better know what to send. There is, he said, too much loaning toward size on the part of growers. If they knew the regular apportionment of marks they would better know the kind of apple to put on exhibition.

DEMONSTRATION ORCHARDS

The advisability of taking steps to urge the provincial Government to establish demonstration orchards, by taking over certain orchards in the various districts was discussed. It was considered desirable that the orchards should be taken over for a period of five years, in order to give a thorough opportunity of showing what could be done.

A committee of three was appointed to wait upon the Provincial Minister of Agriculture and urge that in addition to the work now being done along this line similar work be undertaken by the Department at Covey Hill, Ste. Hilaire, Abbotsford and two other suitable places.

In view of possible danger from the introduction of insect pests the association passed a resolution approving of the Insect Pest Act.

Nova Scotia Fruit Growers' Annual Convention

A number of discussions and incidents of unusual interest happened at the forty-seventh annual meeting of the Nova Scotia Fruit Growers' Association held recently at Windsor, Nova Scotia. Compulsory spraying, which is followed in British Columbia, was advocated by Dr. C. Gordon Howitt, of Ottawa, Dominion Entomologist, who gave an excellent address on "Insects Injurious to Fruit in Nova Scotia." He spoke of the discouragement of a progressive fruit-grower keeping his orchard free of pests by spraying, which involved labor and expenditure of money, while next door, on either side were careless and indifferent farmers, with a few apple trees on their land, in which to breed insects. He was of the opinion that legislation which would compel a man to either spray or give up his trees, would largely overcome the evil. He advised an act for Nova Scotia which would meet with the approval of the fruit-growers.

OFFICERS ELECTED

President—R. J. Messenger, Bridgetown.
Vice-President—A. C. Starr, Wolfville.
Secretary—S. C. Parker, Berwick.

Messrs. S. C. Parker and M. K. Ells were appointed delegates to Ottawa, to meet the mammoth delegation of Western farmers on the tariff question and ask for reciprocity with the United States.

IMPORTANT RESOLUTIONS

The following resolutions were passed:

1. That the Nova Scotia Fruit-growers' Association commend the action of the Federal and Local Governments in desiring to remove restrictions on trade between Canada and the United States, recommending a free interchange of fruits, agricultural implements, fertilizers and insecticides.

2. That the Dominion Government be urged to appoint at once a director, and begin tests on the Fruit Experiment station lately established.

3. That, in the opinion of the Association the subject of Agriculture be added to the High School curriculum—at least, as an optional subject—with special teachers trained at the Agricultural College.

4. That the Government take steps to make the annual exhibition more satisfactory than at present.

Among the speakers were Mr. Alex. McNeill, chief of the Fruit Division, Ottawa, who statde that the Nova Scotja fruit growers have more trees en bloc than any place on the continent. Mr. McNeill urged greater cooperation and more of the enthusiasm and agressiveness of the west.

Some excellent specimens of apples from the Vancouver Show were shown by H. K. Lea, of Port Williams. They were beautiful in color and appearance, but those present felt that Nova Scotia could produce apples equally as good if not superior. The varieties shown were Jonathan, Delicious, Winter Banana, Grimes Golden, Mammoth Black Twig, Yellow Newton, Ben Davis and King David.

Maritime Fruit on Exhibition

Although the year 1910 was an off season for Nova Scotia fruit growers the exhibit of fruit at the Maritime Winter Fair during the first week in December was better than ever before, and showed a vast improvement over the fruit shown at the first Winter Fair held nine years ago. Mr. A. G. Turney, Provincial Horticulturist for the province of New Brunswick, showed a considerable quantity of excellent New Brunswick

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fruit both in boxes and on plates that surprised many who previously were unaware of New Brunswick's possibilities in the line of fruit production.

The Dominion Department of Agriculture made a display of boxed fruit from Nova Scotia, New Brunswick, British Columbia and Ontario, to show the contrast between the apples grown in the respective provinces. This display showed our Maritime Province men that the products of their own orchards compare very favorably with those from orchards in the more western provinces.

The varieties shown from British Columbia were: Ben Davis, Gravenstein, Baldwin, Northern Spy, Jonathan and McIntosh Red.

Ontario showed: King, Ben Davis, McIntosh Red, Baldwin, Northern Spy and Gravenstein.

The Nova Scotia collection consisted of Spitzenburg, King, Blenheim, Ben Davis, Northern Spy and Gravenstein.

In the display of County Collections, the number of entries from the Nova Scotia counties were as follows: Pictou, 3; Kings, 2; Hants, 3; Annapolis, 1; Antigonish, 1; Cumberland, 4; and Colchester, 2.

From Prince Edward Island came two collections from each of the three counties, Kings, Queens and Prince.

A sweepstake prize offered for the best county collection was won by H. A. D'Almaine, Wolfville, Kings county with John Dewar, Queens county, P.E.I., second.

New Brunswick Fruit Growing Progressing

THE recent convention in St. John, N.B., of the New Brunswick Fruit Growers' Association, as well as the exhibition of fruit held at the same time, has increased the interest taken in fruit growing in the province. During the convention W. T. Macoun, Dominion Horticulturist, Ottawa, stated that New Brunswick fruit is noted for its excellent color and that it had long been his opinion that the St. John Valley is destined to become an important fruit producing centre.

Prof. Percy Shaw, Horticulturist, Agricultural College, Nova Scotia, in discussing "Points to consider in establishing an orchard," stated that depth and drainage of soil are more important than the type of soil. Fruit can be grown on any well-drained soil which possesses at least moderate depth. Elevated sites are preferred because of the better air and water drainage secured and also because of the fact that they are less likely to suffer from late and early frosts. Fruit is successfully grown on all slopes, but westerly or south-westerly aspects should be avoided, if possible, because of exposure to winds. Northerly slopes may delay the blooming period until after danger of frost, but delay also the ripening of the fruit. Southerly slopes give earlier maturity, but suffer also from prevailing westerly winds. The best protection from wind is secured with easterly slopes. Generally speaking, land should be plowed and harrowed in the fall and again in the spring before trees are planted. Nursery trees should be ordered early in order to insure getting good stock. It is better to purchase from a local nursery where possible, because trees can be inspected before buying and will suffer less in transit. It is better to order direct from responsible firms than to deal with agents. Spring planting is considered better than fall planting in the East, and should be proceeded with as soon as possible after soil is fit to work.

NURSERY STOCK FOR THE NORTH

Mr. W. T. Macoun discussed the growing of nursery stock in northern climates. The opinion was expressed by several in the audience that the nursery business in the north offers excellent opportunities. Mr. Macoun suggested the offering of prizes for nursery stock at the next fruit show, stating that the competition would be educational for farmers and would furnish good advertising for nursery firms. He had found it practicable to grow first class nursery stock as far north as Ottawa, and described in detail his method. Seed of hardy varieties of hybrid crabs, such as Martha and Transcendent, is sown and the seedlings are root-grafted at one year of age. The first year the scion makes a growth of from twelve to fifteen inches, but is frequently so immature as to become "black-hearted" during the following winter. To overcome this defect, the practice is to cut the young tree back to the ground. Several shoots may start, but one only is allowed to grow, and usually reaches a length of from eighteen to thirty inches. This growth of the second year is considerably freer from "black heart" than is the growth of the first year, and is allowed to remain to form the permanent trunk of the tree.

CROPPING YOUNG ORCHARDS

Prof. J. W. Crow, O.A.C., Guelph, dealt with the "Cropping of Young Orchards."

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markets are not available in the eastern provinces for vegetables or canning fac- Discussion brought out the fact that local tory crops, as they are in Ontario. Crops grown in young orchards in New Brunswick will be potatoes, roots, hay, and sometimes grain. No serious objection was raised to the use of any of these crops, provided a space of several feet on each side of the tree is kept well cultivated during the early part of the season. A peculiar condition obtains, however, along the St. John River on what are called the "interval" lands. They lie at a uniform level of about fifteen feet above the river, but are flooded each spring and are consequently very rich and moist. It appears that these lands will stand continuous cropping for years without requiring fertilizers, and they will also grow apples (especially of the early varieties) to perfection. The orchards, however, are always left in sod and are usually cropped, because the land is rich enough and moist enough to grow two crops at one time without suffering to any extent.

EASTERN VARIETIES

Mr. R. W. Starr, veteran fruit grower of Wolfville, N.S., gave the following as a list of most profitable varieties grown in Nova Scotia: Gravenstein, Ribston, Bellefleur, Nonpareil, Baldwin and Greening. Other varieties proving satisfactory are Wellington, Cox's Orange, Charles Ross and Newton Wonder.

Following is a list suggested by Mr. Starr for New Brunswick, containing both domestic and commercial varieties: Red Margaret, Red Astrachan, Sweet Bough (all early), Duchess, Gravenstein, Dudley, Alexander, Ribston, Blenheim, Wealthy, Baxter, Wagener, Ontario, Bishop Pippin, McIntosh, Spy, Baldwin, Golden Russet, Stark, Nonpareil.

In Nova Scotia one of the best early pears is Marie (a native), followed by Bartlett, Sutton (another native), Bosc, Vermont Beauty, Boussock, Sheldon, Flemish Beauty, and Howell. For the northern sections of New Brunswick, Mr. Starr suggested Maria, Clapp, Flemish, and Howell.

Prof. Crow discussed the "Pollination of Fruit Trees," stating that some varieties are incapable of fertilizing their own blossoms and should not be planted in large blocks. Almost all varieties, so far as known, are benefitted by cross-fertilization, such fruits being larger and better in color. An excellent arrangement is to plant solid rows of one variety, placing two rows of a kind together. It was stated that wind plays very little part in the carrying of pollen, practically all of this work being done by bees and other insects.

ORCHARD MANAGEMENT

Under "Orchard Management," Mr. Macoun stated that a few years ago we in Canada cultivated our orchards on lines laid down by American authorities, and often the results were disappointing. After long experience, he had concluded that the only cultivation needed in northern climates was to break up the land in the spring in order to aerate the soil and then to seed it down at once to a cover crop. At Ottawa rape makes a good matting and holds the snow well, but is, of course, non-leguminous. Summer vetch makes an excellent cover and supplies nitrogen as well. It is killed by the first hard freeze in fall, but will stand some frost.

In cold districts light pruning is to be preferred, as there is much less danger of injury to the tree. If large wounds are made they cannot heal quickly because of the short growing season, and severe pruning would be likely to result in the production of immature wood. Mr. Macoun

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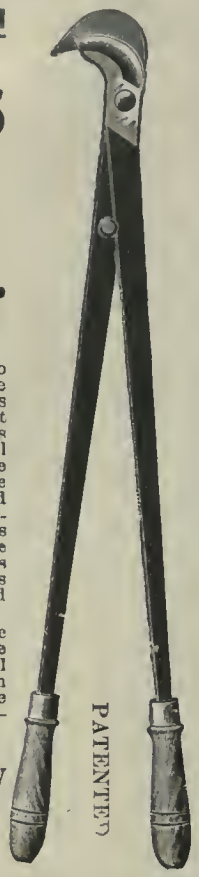

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Why Order Now

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CATALOGUE giving full list of varieties of nursery stock in our Nurseries, mailed free on request. Write for it.

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stated that the Ottawa orchards have been sprayed for eighteen successive years three or four times each year with Bordeaux made according to the old formula, 4-4-40. For some time lead arsenate was used alone as a poison, but of late the practice had been to combine Paris green and lead arsenate, in order to secure the quick action of the Paris green together with the adhesiveness of the lead arsenate.

Many orchardists frequently use more fertilizer than is necessary. Trees do not take a great deal from the soil and it is safer to proceed slowly until experiments have been made to determine the value of fertilizers for each particular soil and district.

BRIGHT PROSPECTS

Mr. A. G. Turney, Provincial Horticulturist, who was engaged by the New Brunswick Department of Agriculture last spring to look after the fruit interests of the Province, and who is in large measure responsible for the success of the Fruit Show and Convention, expressed the opinion that the outlook for apple growing in New Brunswick is extremely bright. Apple raising is destined to become one of its greatest industries. Splendid land is available at a very low rate and within easy reach of an excellent cold-storage plant in St. John. Shipping facilities to Great Britain are of the very best and transportation rates are very moderate.

Mr. G. H. Vroom, Dominion Fruit Inspector, added very materially to the feeling of optimism which characterized all the meetings of the Association when he stated, as reported in our last issue, that there is no possible danger of over-production of apples. Increased plantings of fruit trees may be expected in New Brunswick during the next few years.

Arrangements are being made for the holding of a special school of box packing at the same time as the short course in fruit growing that will be held at the Guelph Agricultural College from January 23rd to February third inclusive. There will be a thoroughly competent instructor and an expert packer from either British Columbia or Oregon who will give several hours each day during the two weeks to personal instruction of the individual student. The class will be limited to thirty. Several hundred bushels of choice apples of different varieties have been secured for the use of the class.

At the annual meeting of the Toronto branch of the Ontario Vegetable Growers' Association held recently, George Syme, Jr., was re-elected president and Frank F. Reeves Secretary-treasurer Messrs. Syme, Reeves, Thos Delworth, J. W. Rush, W. G. Carter, Ed. Eagle, James Dandrich, J. W. Allan and J. Tizzard were elected to act on the board of the provincial association.

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Our SPRING PLANTING LIST will be published on the 1st of February. It will be mailed to all whose names are now on our lists, and to all those interested who will send their names and addresses on post cards.

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Revised Apple Rating

A number of important recommendations were made by the Canadian Apple Growers who met in Vancouver, B.C., under the chairmanship of Mr. Maxwell Smith, during the First Canadian National Show. It was recommended that the meeting of the Pomological Society of America should appoint a committee to revise the rating for apples, making it a double rating consisting of quality and commercial value. It was also recommended that each district having a local pomological society be requested to make recommendations to the parent body in regard to the particular product of the district so that the Pomological Society would have the necessary data to assist them in the work of revision

The last recommendatin was to the effect that the rating of apples be revised as follows: Macintosh Reds from 5.6 to 8.9; Winesaps from 7.8 to 9; Spies from 8.9 to 10; and Baldwins from 5.0 to 6.6; the maximum to remain at 10. These recommendations, which were unanimously adopted, were brought forward by a committee, consisting of Professors Rowe and Newell, and Mr. Martin Burrell, M.P., all judges at the Apple Show, and who had been appointed for the purpose.

CAUSE FOR CHANGE

The chairman pointed out that during the twelve years since the rules of the society were adopted, many changes had taken place in the cultivation of the apple. Many new varieties had been successfully produced while many of the older species had been improved out of all recognition. He gave it as his personal opinion that the apple should now be graded only upon the degree of perfection to which it could be grown in any given district. That, he thought, was the only way in which to encourage the fruit growers to produce the varieties which their climatic environment enabled them to produce in the highest degee. If a certain apple could be grown to better advantage in British Columbia than in Nova Scotia then he thought that that particular apple should be rated upon the standard of excellence reached in this province and not claimed as an inferior quality because its cultivation was not successful in other parts.

New Brunswick Apple Show

Prof. J. W. Crow, O. A. C, Guelph, Ont.

THE east is being rediscovered. "I am clearing timber from my farm and planting apple trees on land which fifty years ago was growing hay and grain." This interesting statement was made by Mr. C. N. Vroom, of St. Stephen, President of the New Brunswick Fruit Growers' Association. The conditions mentioned are not, of course, prevalent over lage areas of New Brunswick, but President Vroom's statement throws, nevertheless, a good deal of light on the present agricultural condition of that deserted province.

New Brunswick has every natural advantage which could be mentioned and lacks only the people, without whom development cannot be made. Land for fruit growing purposes is available at prices ranging from $10 to $50 per acre, and is quite unlike the land of the eastern states, such as Massachusetts, in that it has not been exhausted by continuous cropping. New Brunswick land, comparatively speaking, is good, and is still capable of producing excellent crops of potatoes, hay, grain, apples, and similar crops. So far as the ability to produce fruit of high quality is concerned, the recent splendid exhibition in St. John, N.B., has demonstrated that New Brunswick has the climate as well as the soil.

New Brunswicker is apparently identical in every respect with Duchess, but it is said positively to have sprung from a seed of that variety on the farm of the late Mr. Frank Sharpe. Dudley's Winter is a variety which would seem to be of particular value to Ontario planters. It ripens with Wealthy, is above medium in size, good to very good in quality, and most attractively colored. The tree is hardy and productive and the fruit withstands handling as well as any variety of its season. Bethel is a dark red winter apple of fair quality, and is probably the hardiest good winter apple we have.

Other varieties which were in evidence in considerable quantities, but which are not recommended for commercial planting, were Golden Russet, King, Spy, Greening, Baldwin, Bishop Pippin (Bellflower), Tolman Sweet, Ben Davis, Gravenstein, Ribston and Blenheim.

New Brunswick fruit growers claim to have the best facilities for reaching the British market of any point in Canada. They are, of course, geographically much nearer Great Britain than is Ontario, but it must be borne in mind that until the middle of November the better class of fruit carrying vessels sail from Montreal. After navigation closes in the St. Lawrence, St. John is their winter port, and so far as winter conditions are concerned their claim is well founded. St. John has a splendidly equipped cold-storage plant, and this will probably be made use of by New Brunswick and Nova Scotia fruit growers and will be of great assistance in regulating shipments to the Old Country.

Considerable quantities of Ontario fruit have been stored in St. John at various times, but this season on account of the light crops in Ontario and in the east as well, there are no apples in storage at that point.

New Brunswick and Nova Scotia expect in a few years' time to have the British market very largely to themselves. They are looking to the time when Ontario and Western Canada will consume the greater portion of the crop produced in Ontario and British Columbia.

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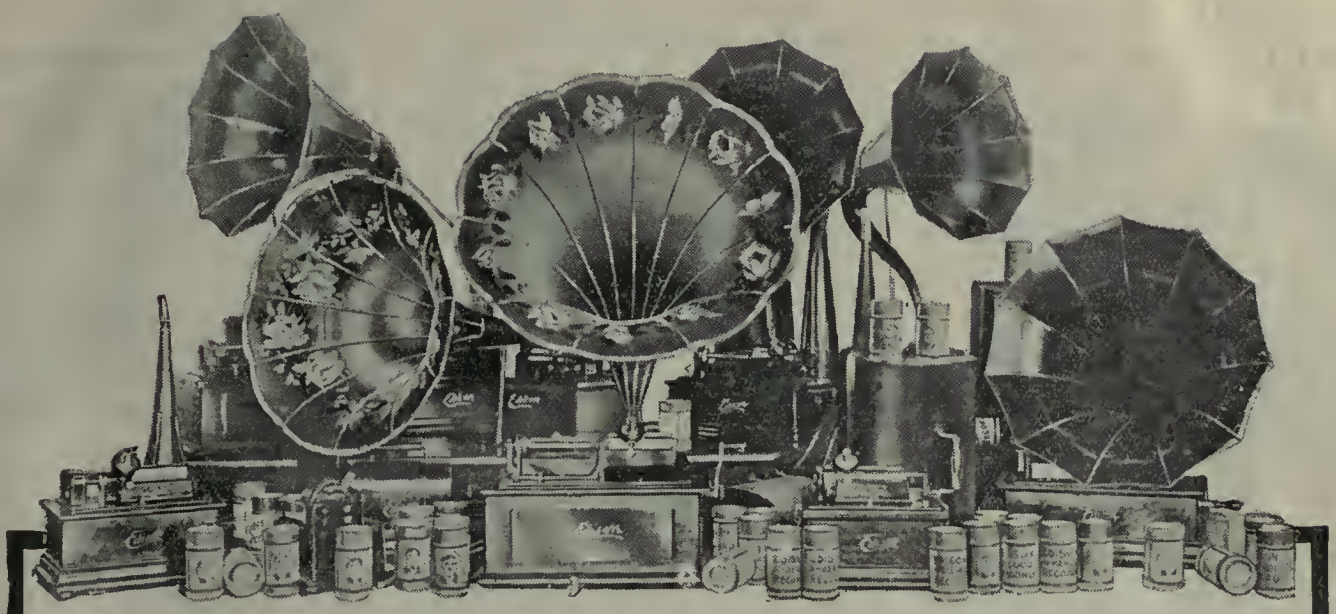

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The San Jose Scale

Prof. C. E. Sanborn, Stillwater, Oklahoma

During the last two or three years the Oklahoma Agricultural Experiment Station has been experimenting with a natural enemy of the San Jose Scale. This enemy is a disease in the nature of a fungous growth. In southern latitudes it has been used even to a commercial extent for controlling the scale, but on account of the weather conditions of the State it has been supposed that such a disease would either fail to propagate itself during the summer or be entirely too delicate to withstand the low winter temperature. Careful experimentation, however, has proved the disease is very hardy and capable of propagation to a very beneficial extent in infested orchards.

Oftentimes diseases of a serious nature are introduced and scattered by insects and other agencies in general. This disease, however, is not capable of doing any damage to anything except the San Jose Scale and allied forms. Its use in orchards, groves, and public parks, as shown by the experiments, will be of a very great advantage in checking the local spread of the San Jose Scale.

It is of the same nature as the chinch bug disease but its appearance on infected insects is not nearly as conspicuous as the latter. To an ordinary observer it appears to be no more than the mold which is commonly present on damp bread a few days old. It will live and propagate on bread and is apparently just as harmless to the higher animal life, but the microscopic examination of an infected San Jose Scale reveals it to be fatal to the latter.

The experiments have been so conclusive in regard to the practicability of checking the San Jose Scale with this disease that the station is now propagating it to an extent sufficient to enable it to supply gratis all interested citizens of this State who request it.

The party requesting it must first submit specimens of scale to the station for identification. If the submitted specimens prove to be the San Jose Scale the station will send a small package by mail.

The fungus is grown on a jelly-like material which is of amber color in appearance. The color of the fungus or disease is white. This material may become more or less disarranged in transit through the mail, but its vitality will not be lessened. Upon its receipt the applicant pastes small portions of it to his infested trees. The jelly-like substance adheres nicely. The fungus gradually scatters from one tree to another of its own accord, but accomplishes better results if artificially well scattered when first applied.

Returns From Orchards

A statement has been issued by I. F. Metcalf, the District Representative of the Ontario Department of Agriculture at Collingwood, Ont., showing the cost of the work done in the demonstration orchards conducted in that district this year and their returns. A large part of the expense was for pruning, of which the orchards were in great need. This item of expense should be divided over a number of years.

Mr. W. Hamilton's orchard at Collingwood realized $405.45, as against a total expense of $144.20, showing a net profit of $261.20. Fifty trees owned by Jno. Osborne, at Dunedin, produced twenty-two and a half barrels of Duchess apples, which sold for $56.25, eighty-two barrels of fall and winter apples which sold for $246, and fifteen and half barrels of culls which brought $9.10, or a total of $311.35. The

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cost of scraping the trees, pruning, two sprayings, working the orchard and sowing a cover crop amounted to $48.30. The cost of barrels, picking and packing cost $78.38. The profit on the fifty trees was $184.67. The most this orchard had ever produced previously in any one year was $50.00. The crop produced was clean and free from worms, and comprised a high percentage of number one apples.

Experiments with Cabbage

A series of experiments with cabbage have been conducted by the Maryland Agricultural Experiment Station. Bull. No. 133 of the station records the work that has been done and gives much valuable advice on the culture of this crop. Conclusions drawn from the results of experiments are as follows:

Cabbage is subject to, and often dies from, stem rot, black rot, root rot and other diseases. The spores of these diseases are generally present in sufficient quantities to inoculate the crop and only need favorable conditions for development. If, then, something could be done so as to do away with any conditions favoring the development of these diseases, farmers could work with more assurance of a crop. The conditions of soil and weather are important factors.

With a soil that is rich, spongy and full of humus, a crop could not be grown in a rainy season. It might be supposed that if such a soil were thoroughly drained it would insure a successful crop. This is doubtful, however, as such soils hold water like a sponge, and water drains very slowly from a sponge, even if there is good opportunity for it to pass off below. This amount of water, however, is likely to dissolve and hold in solution, enough soil salts to poison the roots of the plants. The roots being partly decayed cannot absorb sufficient water to supply the needs of the plants at this, the most trying season, of their growth. This causes a check in the growth, making favorable conditions for disease germs to enter.

During the three seasons in which cabbage could not be raised on the experiment plot, good crops were being grown on soil quite similar when considering the amount of sand, clay and silt in each. They were totally different, however, in their capacity to retain water.

To be able to grow cabbage successfully in this climate, in any season, the soil should be in such condition that the water will pass through it as freely as it would through a piece of pumice stone or porous rock. As a general rule the poorer the soil the drier and more porous it is. Thus it is that on the comparatively poor farms better late cabbages are grown than in the market gardens that are very rich.

A sod field broken early in spring and well manured has generally been found to grow the best cabbage. This does not apply to the early crops; these do best on the soils that are rich and full of humus.

Low priced fertilizers sometimes give as good results as the higher priced goods, but on the whole it will pay to be liberal with nitrogen. The two experiments indicate that it is profitable to use nitrate of soda on the plant beds, at the rate of 450 to 600 pounds an acre.

In localities and on soils where cabbage diseases are prevalent, it is safer to plant the type of cabbage with the purplish green crinkled leaves.

The crop generally seems to do better if the field is marked off both ways and the plants are set in the check and the cultivation is level.

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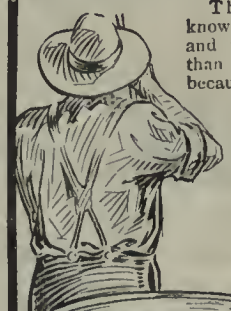

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188 Yonge St., Toronto

Horticultural Possibilities of the West

The Dominion Horticulturist, Mr. W. T. Macoun, returned home recently from a two months trip to the West on his first tour of inspection of the horticultural work at the branch Experimental Farms. In the prairie provinces he found that in most places the growing of apples had proved a failure, but after carefully looking into the conditions he has come to the conclusion that the failure has been due as much or more to the condition of the soil as to the severity of the climate. The prairie soils are for the most part rich in humus, containing a large proportion of nitrogen; the subsoil is in most places clay, and while the surface soil becomes very dry at times, seriously injuring annual crops, the roots of trees are in the moist, cool soil below. The richness of the soil and the moisture of the subsoil favor a succulent growth, which does not as a rule ripen sufficiently to be able to withstand the severe winters, with the result that the trees are being constantly killed back.

Mr. Macoun feels that he is correct in his conclusions by what he saw in Southern Manitoba at Morden and vicinity. Here the conditions of soil are quite different. There is a gravelly subsoil which thoroughly drains the land, and the soil is not so rich as in most of the settled parts of the prairies. Here he saw apple trees perfectly healthy and hardy, twenty-one years of age, quite as good trees as may be seen about Ottawa. There are thousands of acres along the Pembina hills in Southern Manitoba where the conditions appear as favorable as at this place. Mr. Macoun, therefore, believes that while hardy apples may be originated which will withstand the adverse conditions of both soil and climate, among such being the hardy cross-bred apples originated by Dr. Saunders and found hardy in many places, the commercial orchards of the prairies, if there are ever such, will be situated in those parts of the west where the soil is lightest and the drainage best.

Native plums and bush fruits succeed well in many parts of the prairie provinces. Annual and perennial flowers do particularly well on the prairies, the colors appearing to be intensified by the clear atmosphere and bright sunshine there. Ornamental shrubs of many kinds succeed well, as do a number of species of trees, most of the shrubs growing along the driveway at Ottawa being hardy on the prairies. In Mr. Macoun's opinion there is no reason why the surroundings of the farmer's home on the prairies should not be made as beautiful as in the province of Ontario.

While in British Columbia, he visited the famous Okanagan Valley, where there is a good crop of fine apples this year. On his way home he went to see the Experimental Stations in North Dakota, South Dakota, Minnesota, and Iowa, in order to learn what they were doing there which would be of value in Canada.

After visiting many of the Experimental Stations in the United States on this and former occasions, Mr. Macoun believes that the Experimental Station system controlled by the Dominion Government and extending, as it does, from Prince Edward Island to British Columbia, is much preferable to a State or Provincial system only where the influence of the work of each station, good as it may be, is much more limited than where the station in every province or state is controlled by the Federal Government. Mr. Macoun also comes back believing that the Central Experimental Farm at Ottawa is the most

beautiful, the best kept and the most useful Experimental Station to the people whom it was established to serve, namely, the farmers, of any station in America he has visited. He also saw no city that pleased him as well as Ottawa, which, as a result of the work of the Dominion Government Improvement Commission, has been vastly improved and beautified during recent years until now the capital is a credit to Canada.

The Dominion Canners Combine

The Monetary Times prints full details regarding the organization of Dominion Canners, Limited, with head office at Hamilton. This combine embraces 45 canning factories and also one-eighth interest in a Beamsville factory. The capitalization is as follows:

First mortgage, 6 p.c. bonds....$1,500,000
Preferred stock, 7 p.c..... 2,100,000
Common stock..... 2,100,000

The preferred stock was paid out for the various properties. The bonds have been underwritten by Messrs. C. Meredith and company, of Montreal, while the Dominion Bond Company of Montreal and Toronto, is offering $100,000 of the 7 per cent. cumulative preferred stock, with a 25 per cent. common stock bonus.

The following are factories taken over by the Dominion Canners, Limited.

Aylmer Canning Company, Brighton Canning Company, Kent Canning Company, Delhi Canning Company, Dresden Canning Company, F. R. Lalor Canning Company, Grimsby Canning Company, Simcoe Canning Company, Imperial Canning Company, Lakeport Preserving Company, Warehouses, Delhi Canning Company, A. C. Miller, W. Boulter & Sons, Port Hope Preserving Company, Ontario Pure Food Company, Kent Canning Company, Strathroy Canning Company, Lowery Bros., Miller & Company. Bowlby Bros., Belle River Canning Company, L. N. Schenck & Company, A. B. Taylor Canning Company, Wellington Packing Company, West Lorne Canning Company, Leamington Canning Company, Amherst Canning Company, Aylmer Condensed Milk Company, Limited, Belleville Canning Company, Bloomfield Packing Company, Farmers' Canning Company, Limited, Burlington Canning Company, Hillier Preserving Company, Jordan Station Canning and Preserving Company, Napanee Canning Company, Niagara Falls Canning Company, Old Homestead Canning Company, J. H. Wethey, Limited, St. Thomas Canning Company, Tilbury Canning Company, Limited, Lakeside Canning Company, Limited and one-eighth interest in Beamsville factory.

The company controls more than 90 per cent. of the output of canned fruits and vegetables in Ontario, which produces 95 per cent. of the total quantity consumed in Canada. The above-named factories are distributed over the fertile strip of southern Ontario, commencing at Napanee, in the east, and continuing to Sandwich, in the west, a distance of more than 400 miles, with both water and railway transportation facilities from many of the factories. One of the special lines of the company is gallon apples for which there is a good export demand for Great Britain.

The company owns its own can-making factory and manufactures the bulk of the cans required, purchasing the remainder from the American Can Company. A lithographing plant is also owned and operated by the company, supplying all the labels used.

There were marketed from the orchard of W. H. Bunting, of St. Catharines, this year, 2,000 barrels of apples. The cull stock sent to the evaporators did not amount to over 250 bushels.

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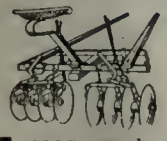

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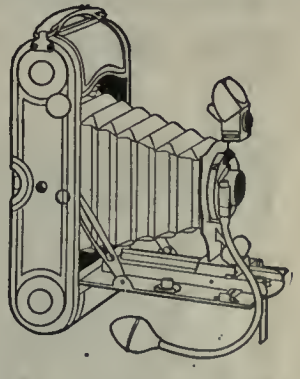

At Home with the KODAK

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"At Home with the Kodak" is an interesting booklet, telling of the joy of picture making at home and full of practical hints to picture makers everywhere. It explains just how easy it is to take good home pictures with the Kodak, and the simple method of developing the film the "all by daylight" way. It makes clear, too, how to get good flashlight pictures, the safe sure way with the Eastman flash sheets. There are many home pictures you can get by flashlight which would be impossible in daylight.

This Booklet, illustrated by twenty-six home pictures, we will send free on request or it can be had by asking any Kodak dealer.

CANADIAN KODAK CO., Limited
Toronto, Canada

Ginseng Growers Meet

P. Wilson, Secretary,, Toronto

The third annual meeting of the Ontario Ginseng Growers' Association was held in the Y.M.C.A building, Toronto. recently. In the absence of the President, Mr. D. Menzies, of Kelso, occupied the chair. The members present were Messrs. P. Menzies, Milton; J. Leary, Whitevale; Mr. Nichols and Mr. J. Moon, Mono Mills, Ont.; Dr. Baird, Uxbridge; Rev. Dr. Medd, Goderich; Rev. W. L. Martin, Manswood; Dr. McKendrick and J. Frazer, Galt, Ont.; N. Wilson, Vittoria; J. A. Austin, Toronto; R. Lyons, Mons Mills; E. Baker, Goodwood; J. A. Goman, S. O. George. The present officers were re-elected for another year.

Some American dealers are advertising and selling roots and seeds far below their value. A resolution was passed that the executive committee should take steps to have a duty of 50 per cent. placed upon seeds and green roots and that the secretary be instructed to correspond with the Minister of Agriculture at Ottawa to that end.

After recess the Rev. W. L. Martin, of Mansewood, Ont., read a paper on the ginseng plant and its diseases and culture. Mr. J. Frazer, of Galt, and Mr. N. Wilson, Vittoria, contributed to the program.

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The Planet Jr 1911 illustrated catalogue is a complete guide to lighter farm work, better crops, and more money. Every farmer and gardener should possess it as soon as the mail can bring it. What's the sense of drudging when you don't have to? **Write today,** and let this free book help you select the labor-saving implements you need.

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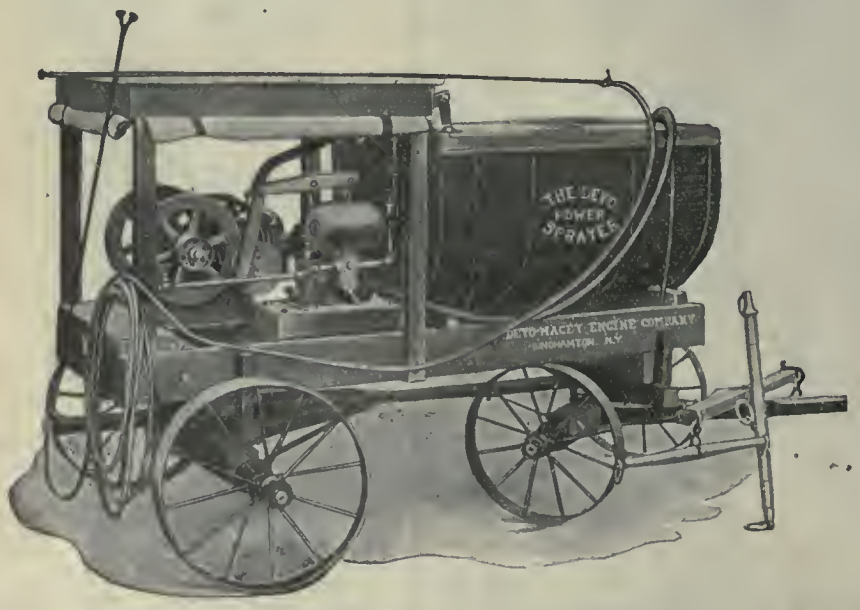

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CANADIAN REPRESENTATIVES—St. Catharines Cold Storage and Forwarding Co., St. Catharines, Ontario.

Items of Interest

Some eighty-seven business men and ratepayers of Toronto recently presented a petition to Property Commissioner Harris requesting the city to establish the proposed civic fruit market in the neighborhood of the St. Lawrence market, where it would have a wharf nearby.

Immense quantities of vegetables are grown in the vicinity of Sarnia, Ontario. These are shipped inland as well as on the large steamers engaged in traffic on the great lakes. Photographs were secured recently of a number of the leading growers with their wagons loaded with vegetables. The steamer Huronic was shown ready for her voyage for Port Arthuur and Fort William with a hundred tons of vegetables. The photographs have been sent to a number of illustrated papers.

Dairy and Cold Storage Commissioner J. A. Ruddick sent a shipment of 150 boxes of Fameuse and McIntosh Red apples during the first week in October to Mr. Wm. Hutchinson, the Canadian Commissioner at the Brussels Exhibition. Mr. Hutchinson reports that these apples have proved a big advertisement for Canada. They have served to show the people the difference between real Canadian apples and those offered for sale in Brussels as Canadian apples. The public was so much impressed by these Canadian apple men in the fruit trade started to advertise their fruit whether it was from Canada or not, as being Canadian.

The report of the thirty-first session of the American Pomological Society, held at St. Catharines, Ontario, last year is being distributed. The report contains a large amount of information of the greatest value to present or future orchardists and gardeners. In its 350 odd pages, there are chapters on the following subjects: Orchard management; the latest on lime-sulphur sprays; a discussion of the adaptation of varieties to soils and climates; gooseberry culture, with special relation to methods of growing the English varieties; grape varieties of the east and west; and a very important chapter on co-operation in the marketing of horticultural products. The secretary is John Craig, Ithaca, New York.

Mr. Jas. P. Murray, of Toronto, has written to THE CANADIAN HORTICULTURIST, suggesting that as the Canadian National Exhibition is visited each year by thousands of people from all parts of Canada and the United States the grounds, which are spacious, or a large portion of them should be converted into a park and used for the growing of shrubs and flowers, which could be grouped and laid out in the most attractive manner possible. Lectures might be given on garden work. The grounds could be kept in an attractive condition throughout the summer months and the plants grown be properly labelled to educate the public. Mr. Murray believes that a floral park, such as suggested, would make its influence felt in almost every city and hamlet throughout Canada.

It pays to advertise. Try it.

The Canadian Horticulturist

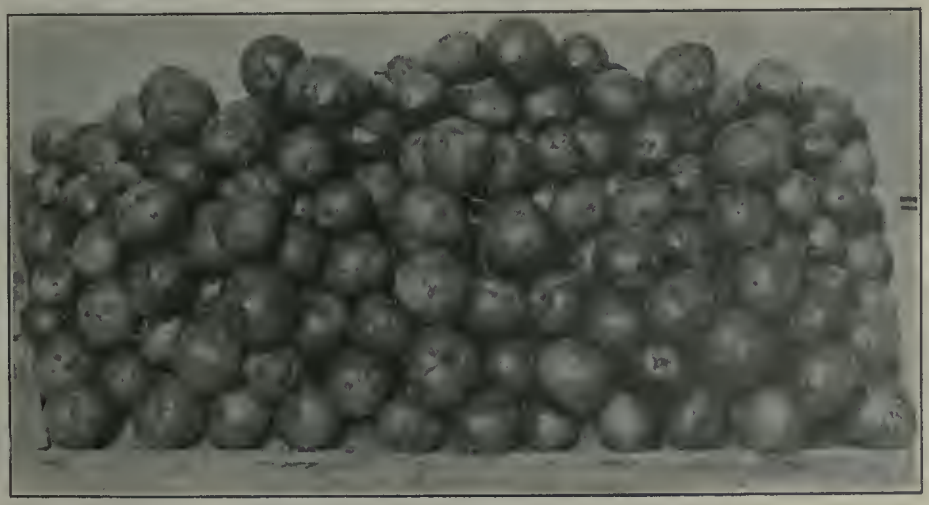
Vol. XXXIV FEBRUARY, 1911 No. 2

Large Profits from Spraying Old Orchards

DURING the past season some of the finest apples ever produced in Ontario, were grown in the district about Burlington. An editor of The Canadian Horticulturist who visited this section recently, found that the growers have awakened to the fact that it pays to take care of their apple orchards. A great interest has been taken in spraying. The growers have learned how and when to spray, and the proper materials to use. The results these growers have obtained have been a great incentive to others, and each year many new growers are following their example.

Northern Spy Apples taken from lower limbs in Ray Clark's orchard, Woodville, N. S., having been carefully sprayed with Niagara Lime-Sulphur

Messrs. Porter Bros. of Appleby, decided last spring to take care of their orchard in an approved manner They had been spraying for some years with Bordeaux, but in an indifferent way and their results were anything but satisfactory. Their crop of apples for several years had been very poor, and it was with difficulty that they could find a purchaser at any price. Last spring they started at their orchard early. They pruned and scraped their trees. They plowed early, and applied about half of a ton per acre of commercial fertilizer. They discarded their old hand pump and purchased a gasoline power sprayer. They used commercial Lime-Sulphur, diluted at one to eleven for the dormant spray, and commercial Lime-Sulphur, diluted at one to thirty-five, with Arsenate of Lead added, for their summer sprays. Messrs. Porter sprayed very thoroughly. They had gone to considerable expense purchasing fertilizer and power outfit, and they concluded that if the job was worth doing at all it was worth doing right. They applied their spray at the proper time, and never stinted the quantity. The results were very gratifying to them. They produced the largest and best crop they had ever grown. Their varieties consisted of Spys, Greenings, Baldwins, Seeks, Russetts, Snows and Ribston Pippins, principally. Apple Scab was entirely controlled, and Codling Moth to over eighty per cent. Their Snow apples had never been fit to pick before, and this year they were really a sight to behold. Not one spotted or blemished apple could be found on the trees. They were besieged with apple buyers and succeeded in disposing of their crop at a price double the best they had ever received before. Messrs. Porter claim that as an investment, this spraying proved the best they ever made.



Apples taken from the tops of the same trees, being too high to reach with the spray

In the orchard of Long Bros, situated one mile east of Burlington on the bank of Lake Ontario, probably even better results were obtained. This orchard had never been sprayed. It had the reputation of growing the worst spotted apples of any orchard in the district. When other orchards near it would grow reasonably fair fruit, the apples in this orchard were always spotted. This was accounted for by some because of its close proximity to the lake. Last year Long Bros. decided to spray. As they had had no experience themselves, nor any equipment to do the work, they engaged a man with a power outfit, who had been successful himself. This orchard was sprayed very thoroughly, twice with Lime-Sulphur and Arsenate of Lead. Probably no orchard ever received in two applications a greater drenching. It had nearly all the diseases that apple orchards were affected with, namely, San Jose Scale, Oyster Shell Bark Louse, Bud Moth, Codling Moth and Apple Scab, so great care was taken in the spraying. It was the intention to make an object lesson of this orchard, as some growers in that district thought it impossible to make good fruit grow there.

The total cost to Messrs. Long Bros. for Lime-Sulphur, Arsenate of Lead and labor, was $95.88. The results obtained

were really marvellous Their orchard was visited by hundreds of fruit growers and was generally pronounced as the best they had ever seen. It consisted of less than six acres, and was sold to an apple buyer for $1375.00 on the trees, and he reports it was a profitable investment for him. Thus Messrs. Long, with an investment of $95.88, realized in one year a return of $1375.00. This amount represents over three times more than was ever realized from the orchard in any previous year. As a test case, in this orchard, one single tree that was situated among berry bushes, was left unsprayed, with the result that the fruit was totally unfit for even the evaporator.

A NOTED ORCHARD

Messrs. J. C. and M. C. Smith produced last year a large and beautiful crop of apples. It was in their orchard located in Burlington that the government held the fruit meeting on September 7th that was fully reported in the October issue of The Canadian Horticulturist. This meeting was attended by prominent fruit growers from all parts of Ontario. This orchard consists of three hundred trees. At the time of the meeting considerable discussion was heard as to the probable quantity of apples in the orchard and the probable percentage of No. 1's. At the time of the meeting Messrs. Smith were offered $2500.00 for their crop, which was refused. This orchard packed out over 1050 barrels, and for which over $3500.00 was realized. Apple Scab and Codling Moth were almost entirely controlled. The only No. 3's that were in the orchard were those marked by hail.

This orchard is over fifty years old and the trees large and hard to handle. The most approved care is given the orchard in the way of pruning, cultivation, fertilizing and spraying. Probably no orchard in Ontario receives more thorough spraying than this one, and it is this thorough spraying that produces apples so nearly perfection. This orchard was sprayed four times with a power sprayer at a pressure of one hundred and eighty to two hundred pounds. At each application it received about three thousand gallons of spray. This orchard has had this systematic care for the last four years, and has produced on an average of one thousand barrels per year. The soil in this orchard is very light sand.

Messrs. Smith have another orchard situated close to the Mountain on hard clay land. This orchard they have had for two years only, and have succeeded in producing two beautiful crops. The crop this year consisted of over fifteen hundred barrels, over twelve hundred of which were Northern Spys. The same care and attention was paid and the same high results were obtained. This orchard had been neglected for fifteen years, and the way in which it responded to treatment was remarkable. Probably the most beautiful Spys that were ever grown in Ontario were in this orchard this past year.

Orchard owned by Mr. J. C. Smith, Burlington, Ont., where Spraying has Paid

This orchard was thoroughly sprayed last year with lime-sulphur and produced exceptionally fine fruit. It is mentioned in the accompanying article.

OTHER GROWERS SUCCESSFUL

Many more instances could be given of results obtained in this section. The above orchards are mentioned only because they had previously been neglected and are quoted to show what can be done in one year. The old fruit growers in the district who have for years been taking care of their orchards, were again rewarded with good crops of good fruit, Particular mention should be made of Mr. A. W. Peart, Mr. H. T. Foster, Mr. Smith Freeman, Mr. W. F. W. Fisher, Mr. R. C. Fowler, Mr. Leeman Wilson, Mr. W. H. Easterbrook, and Bell Bros.

The only good apples in the district were found in orchards that had been thoroughly sprayed. It has been demonstrated that spraying pays. There have been many doubters in this section about this question, but it is very hard to find any of them now. It is generally predicted that spraying will be almost universal this year. The growers in this section are using commercial Lime-Sulphur and Arsenate of Lead. They claim their results are most satisfactory.

There is probably no section in Ontario where growers have had so many obstacles to overcome as here. This is the recognized home of the Codling Moth. In the valley between the mountain and the lake this pest has flourished to perfection. Here they also have San Jose Scale, Oyster Shell Bark Louse, Blister Mite, Bud Moth, Aphis, and about every pest known to affect the apple. That they have succeeded in controling these pests, is creditable to them, and should be an object lesson to fruit growers in other parts of Ontario. Fruit growing has received a great stimulus in this district, and Halton county may be reckoned on in the future as a producer of good apples. Several new Fruit Growers' Associations have been formed in the vicinity, and their intention is to grow apples for profit.

Experience in Spraying

Hamilton Flemming, Grimsby, Ont.

I have always used the home-made lime and sulphur mixture in almost equal proportions, and applied while warm. My spraying outfit consists of an ordinary forty gallon barrel with hand pump, hose rod and a double nozzle. I commenced spraying operations last year on March 31st, and finished April 11th.

RESULTS

In an orchard of one thousand one hundred peach trees, I applied twenty-four barrels of spray at a cost of ninety cents a barrel. The trees were sprayed *very* thoroughly. The direction of the wind was carefully watched. The lime in the mixture made it possible to see where branches had been missed, and so made a final touching up an easy task.

I had very little curl-leaf, except on fifty "Triumph" trees, which, however, yielded an average of nine eleven quart baskets per tree. No thinning was necessary. From eight hundred trees in bearing, I marketed seven thousand two hundred quart baskets, chiefly "selects" or No. 1. My trees appear clean and in a healthy condition.

Intensive Fruit Growing

A. W. Peart, Burlington, Ont.

THE general practice in orcharding is to have a larger acreage than is properly cared for. In order to make a fair margin of profit in producing pork, beef, milk, or dairy product, careful, systematic attention must be given to the essential details. The same applies to growing fruit.

When a person has a plantation larger than his capacity to care for it, there is a loss of money in the land occupied by the trees, and in the trees themselves not working up to their normal level. It may not be wide of the mark to say that in this Province fruit trees are not giving more than half results. There are, of course, many exceptions to this. Some orchards of apples, pears, plums, cherries and peaches are managed on a business basis; but there is room for a wide extension of the intensive system. There is no good reason why an average apple orchard of working age and ten acres in extent, should not give in ten years 5,000 barrels of apples worth $8,000 to $10,000.

ESSENTIALS

An intensive system seems to involve at least the following factors:

First—The selection of a proper natural soil for the kind of fruit. Apples appears to be the most profitable when planted on sandy, gravelly and light clay loams; pears on clay loams; cherries on high, sharp, gritty, gravelly soils; while plums are similar in their wants to apples.

Second—Planting the right varieties. In setting out a young orchard one should select those varieties of known merit in the district where he lives, and then not more than five or six standard sorts to cover the season, thus avoiding congestion in harvesting the fruit.

Third—Cultivation. When trees are properly planted it is important to give them a good start. If you want to make a good man you must begin when he is a baby. There is a wonderful analogy between the animal and the vegetable worlds. Cultivation should be frequent until about the first of August to preserve the moisture and keep down weeds, grasses and so forth, which also abstract water. Your tree will then make a good healthy growth. Throughout the life of an orchard in most cases cultivation should be an annual portion of the care.

Fourth—Pruning This begins with planting. The head should be formed of three or four main branches, and never of two. Thence on, thin judiciously each year with a tendency towards severity. Too many are afraid of hurting a tree. There is practically no danger of injuring our orchards. The branches of young trees growing too strong should be cut back year after year, and old trees going too high should be dehorned according to circumstances.

Fifth — Fertilizing. This requires careful, discriminating judgment. If the requisite food is not in the soil then it should be applied. Speaking generally, stable manure is good for trees in all stages of their life, especially on clay soils, when growth is usually slow but productivity light. Green crops ploughed under are also economical, granulating the soil and retaining moisture. On lighter lands, wood ashes, potash and phosphoric acid in some form may occasionally be used to advantage.

Sixth.—Spraying. With the coming of increasingly large numbers of injurious insects and fungi, spraying has reached the stage of necessity. This, in late years, has been shown beyond a peradventure.

Seventh—Picking. Fruit should be picked carefully to avoid bruises and consequent depreciation. Careless men should not be sent to an orchard. By the use of suitable extension ladders instead of the old long ones, a man can pick more apples in a day from a tree of standard size.

Eighth—Marketing. The selling side of the fruit business is of as great importance as the producing end. Only in recent years have growers begun to realize the necessity and advantage of eliminating as far as possible the intermediaries between them and the consumer, and thus increasing profits. Slowly but steadily cooperative associations are being organized in various portions of the Province. These are giving their members a distinctly increased margin for their fruit, and at the same time stimulating the "intensive" system in the management of their plantations.

The attitude of a grower should be that of a doctor towards his patient. What is wrong with this tree or orchard? It is not giving results. Study its symptoms, diagnose the case, then apply the proper remedy.

In The Orchard

Feed the winter birds in the orchard. They will destroy thousands of injurious insects, and thus reward you next summer.

Prune out egg masses of tent caterpillars, scrape off loose bark from the trunks and large limbs of trees with a dull hoe. Destroy cocoons of fall web worms and other hibernating insects. While the ground is still frozen clear all rubbish off the garden spot and give it a dressing of stable manure, which is to be spaded in later when the frost is out of the ground.

The Maine Experimental Station pruned, sprayed, and dug around an old apple tree eighty years old, and last year it yielded twelve barrels of fruit. Unless your orchard is over eighty years of age it is not too late to save it by thorough pruning, grafting, fertilizing, and good care.

In pruning, do not take out more than one-third of the whole top in one year. To do so would throw the trees out of balance and cause an excessive growth of water sprouts. Give the tree light by cutting out fair sized secondary branches and leave the small laterals.

One year wood should be cut to a bud. Older wood to a branch. Stubs left on are not only unsightly, but are good footholds for insects and germs.

If the fruit grower has from ten to twenty acres of fruit he will need some make of a gasoline power spray outfit, which will be found more economical.

A Modern (Hardie) Power Sprayer at Work in a Western Orchard—Note the Advantage of Low Trees

A Home-made Soluble Oil for the San Jose Scale

C. D. Jarvis, B.S.A., Storrs, Conn.

OF all the remedies thus far proposed the lime-sulphur wash is the most popular for the San Jose Scale, and the most generally used. That there is a general demand for something more convenient is evident from the activity of the various experiment station workers in proposing new remedies. Hydrocyanic acid gas, whale oil soap, kerosene emulsion, undiluted crude petroleum, kero-water (a mechanical mixture of kerosene and water), and the kerosent-limoid (K-L) mixture have all been exploited in their turn. They all had their weak points and limitations. Very few are now in use, and these only in restricted areas.

In considering the relative merits of "soluble oil" and the lime-sulphur wash for the treatment of the San Jose Scale, many important factors must be taken into consideration. Under ordinary conditions, the oil spray is more efficient, is as free from injurious effects upon the tree, decidedly cheaper, decidedly more convenient, and less destructive to spraying equipment. In view of the absence of coloring matter it is especially valuable around home grounds or roadsides and in parks. The various commercial preparations, such as Scalecide, Kill-O-Scale, Sure-Kill and Target Brand Scale Destroyer, are very convenient for the man with a few trees to spray. In view of a "soluble oil" prepared according to the formula herewith recommended, being offered for sale by several firms at a much lower figure, the cost of these preparations may ultimately be reduced. The chief advantage of the lime-sulphur wash over oil sprays consists in its influence in controlling the leaf curl, and its invigorating effect on the tree. Where leaf curl is present, an occasional application, once in two or three years is recommended.

THE EMULSIFIER

The value of crude petroleum as an insecticide has long been known. In its undiluted condition it is injurious to vegetation, yet under very favorable conditions, it may be used on dormant trees for the destruction of San Jose Scale. Not only is the undiluted petroleum unsafe, but it is decidedly too expensive. By means of mechanical contrivances or "emulsion pumps," attempts have been made to supply oil in a diluted condition. Such contrivances were a partial success, but were not reliable and their use has been practically discontinued. Chemical reagents must therefore be depended upon to bring the oil into such a condition that it may readily be diluted with water. The combination of chemicals used to bring about this condition is termed the emulsifier; the resultant oil after it has been acted upon by the emulsifier is termed the "soluble oil," and the diluted "soluble oil" is called the emulsion or spray mixture. The formula for making the emulsifier is as follows: Carbolic acid (liquid crude 100%) two quarts; fish oil (Menhaden), two and a half quarts, caustic potash (granulated), one pound. Heat to 300 degrees F., remove from fire and immediately add: Kerosene, three and a half quarts, water five and a half quarts.

This formula is sufficient to make slightly more than three gallons of the emulsifier, fifteen gallons of the complete "soluble oil," or two hundred and forty gallons of the emulsion ready for spraying.

The carbolic acid, fish oil and caustic potash should be deposited in the kettle before the fire is started. The mixture should be slowly stirred for a few minutes after the fire is lighted, or until the potash is dissolved, at which time the cover should be placed on the kettle to prevent loss from steaming and evaporation.

The cooking is best done in an iron kettle. The ordinary caldron kettle commonly used on the farm for making soft soap will answer the purpose. A large kettle is not necessary for, as may be seen from the above formula, slightly over one gallon of the cooked mixture (carbolic acid and fish oil) is sufficient to make two hundred and forty gallons of spray mixture. The kettle should be supplied with a close fitting cover, through which has been bored a small hole to accommodate a perforated stopper, by which the thermometer is held in place. A thermometer about eighteen inches long and graduated from two hundred degrees to three hundred and ten degrees Fah., will be most suitable. The graduated portion should be restricted to the upper end so as to project above the cover. Any good thermometer graduated to about three hundred and ten degrees Fah. will answer the purpose. If not long enough to reach the liquid in the kettle, it may be lowered through the hole in the cover by means of a string. The kettle should not be more than half filled to al-

A Seedling Peach as Grown in a Toronto Garden

Mr. Roderick Cameron, Toronto, sends the following history of the peach shown in our illustration. Mrs. R. L. Brereton, Toronto, saved the pit from the finest peach in a basket bought at the Chicago Exhibition. The fruit is different in taste and appearance to any Mr. Cameron has ever seen although he is an authority on the subject. In color it is between a yellow and white, medium in size, ripens after the yellow St. John and is a free stone. Mrs. Brereton was so well pleased with her success in growing this peach that she continued planting and now has trees all around her City lot, which all bear the finest fruit. All the peach seeds have produced fruit as good and almost identical with the parents while the trees are productive. As a rule it is only one out of a hundred seedlings that turn out to be worth growing. Mr. Cameron then asks, can it be possible that peach trees grown from peach stones planted where the tree is to stand are hardier, deeper rooted and longer lived than a tree transplanted from the nursery. He thinks that this would be an interesting matter for the experimental station to decide.

low for foaming, and in view of the hot mixture being somewhat inflammable, the fire should not be allowed to blaze above the edge of the kettle.

When the temperature approaches two hundred and sixty degrees Fah., the cooking requires close attention, and if the mixture foams up near the top of the kettle, it may be advisable to subdue the fire for a time, or until the temperature reaches two hundred and seventy degrees when the foaming ceases. Under no circumstances should the cooking be done in or near a building, unless of course, a steam coil or jacketed kettle is used. If steam to a pressure of about sixty pounds is available, a jacketed kettle will be found most convenient. The operation of cooking whether done over a fire or by steam should not require more than thirty minutes.

When the required temperature is reached the kettle should immediately be removed from the fire, or the fire quickly subdued by means of sand or dry soil. The hot mixture should be transferred to a larger vessel and the kerosene immediately added then the water. Serious results may occur if the water is added before the kerosene. Both the kerosene and water should be poured in slowly while the whole is being stirred.

The emulsifier when properly made and at the ordinary temperature is quite liquid, somewhat stringy, and when held in a glass to the light, of a clear, reddish-brown color. It remains in good condition indefinitely—a sample at the end of eighteen months was found to just as efficient as at the beginning. In view of its keeping quality it may be made up during rough weather or slack seasons.

THE "SOLUBLE OIL"

Although the "soluble oil" remains in good condition for a long time, it seems advisable to delay its preparation till spraying time. It is readily made up without the application of heat. After thoroughly stirring up the emulsifier, the ingredients are simply brought together in the following order: Emulsifier, eight parts; crude petroleum, twenty-three parts; rosin oil, four parts; water, one part (more if necessary).

When the ingredients are brought together in the above proportions they should be vigorously stirred. With large batches, a garden hoe may be conveniently used for this purpose. At first the mixture when stirred will appear thin and sound harsh, but soon becomes thicker and smoother. When this condition is attained the soluble oil is complete. A test may be conveniently made by pouring a few drops in a glass of water. A white or milk-like emulsion should be the result.

In view of the variable character of crude petroleum the proportion suggested occasionally fails to produce a soluble oil. As a rule, a slight increase in the proportion of water will produce the desired effect. The quantity which may be used depends greatly upon the quality of the crude petroleum and to some extent upon the efficiency of the emulsifier. With a well-made emulsifier and a good quality of crude petroleum, as many as forty-five parts of the latter have been used with excellent results. The emulsifier and the rosin oil being the more expensive items in the production of a soluble oil, it is important that they be made to carry as much crude petroleum as possible. In other words the cost per gallon of soluble oil is reduced by increasing the proportion of crude petroleum.

Winter Pruning at the Coldstream Ranch, B.C.

(Photo sent by Mr. R. T. Boies).

DIRECTIONS FOR USE

The amount of spray material required per tree varies from one quart for young trees to five or six gallons for large apple trees. For every 1000 gallons of emulsion or spray mixture, approximately the following quantities are required:

Carbolic acid, two and one-quarter gallons.

Fish oil, two and three-quarters gallons.

Caustic potash, five pounds.

Kerosene, three and three-quarters gallons.

Crude petroleum, forty gallons.

Rosin oil, seven gallons.

One gallon of "soluble oil" to fifteen of water is recommended, although a weaker solution, one to nineteen, has produced good results. If the "soluble oil" has been standing long after being made, it should be thoroughly stirred before using. When satisfied that it will readily mix with water, three gallons may be poured into a fifty-gallon spray barrel which is afterwards filled with water. This will give aproximately the proper proportion.

It is extremely important that clean utensils be used. A barrel in which Bordeaux mixture has been used, is unsafe for oil emulsion unless very thoroughly cleansed. The small amount of copper sulphate which clings to the inside of the barrel is enough to cause a separation of the oil and water. Lime and sulphur have a similar influence, but this mixture acts more slowly. Neither arsenate of lead nor Paris green has shown any such tendency.

The use of the agitator is not essential. An occasional stirring with a dasher of some kind will answer the purpose.

APPLY THOROUGHLY

Thoroughness of application is of utmost importance; every portion of the tree must be covered with a film of oil. In the case of badly infested orchards, two aplications are recommended, one in the fall and the other in the spring. As a regular practice, however, one thorough application a year should keep the insect in check. With the use of a fine nozzle and abundant power, more thorough and more economical work may be done. Many insects hibernate under bud-scales and among plant hairs, and will escape the spray unless it is applied with sufficient force through a fine nozzle. It is more difficult to detect faulty work on the part of the operator with oil than with lime and sulphur, and for this reason, the spraying should be delegated to trusty men. With large apple trees, one man should spray from the ground to cover the lower parts of the branches and another from a tower on a wagon to spray the upper surfaces of the lower branches.

If a rain should occur within twenty-four hours after spraying, or before the water in the emulsion has evaporated, a second application may be necessary. After the water has evaporated, the oil is unaffected by the rain and will remain until it also has evaporated.

TIME TO SPRAY

Like the lime-sulphur wash, oil emulsion at regular strength must be applied

An Ontario Orchard with a Mile of Apple Trees

But few people have a true conception of the extent of the apple orchards in the leading fruit districts of Ontario. The orchard here shown is owned by W. H. Gibson, of Newcastle, Durham County, and comprises some seventy-five acres. There are thousands of acres of fine orchard land in this district that should be properly advertised and thus settlers be attracted. The National Apple Show in Ontario next year will help to do this. Let all Ontario take hold.

while the trees are dormant. The insects that live over winter are those of the last brood, which are born just before the leaves drop in the fall. At first their scaly covering is very thin and is not firmly attached to the bark. From this it would seem that the insect is more susceptible to treatment in the fall. However, so far as killing the insect is concerned, equally good results have followed spring application. It is evident that badly infected trees suffer from the presence of the scale during the winter months, at least during the fall and early in the spring before the spraying is commenced. In view of this fact and because of its greater convenience fall spraying is recommended. It must not be understood, however, that this is the only time, for it may be successfully done any day from the time the leaves drop in the fall until the buds commence to swell in the spring, providing the temperature is above the freezing point.

Fertilizers for Fruit Growers*

Prof. R. Harcourt, O. A. C., Guelph, Ont.

ARTIFICIAL fertilizers will give their best results only when used along with farmyard manure. We should never think of entirely replacing stable manures with fertilizers; rather, they should be used in conjunction with it. Furthermore, the full results of fertilizers can be obtained only when they are used in conjunction with the very best of cultivation; consequently, the presence of humus and thorough cultivation should always be associated with the use of fertilizers.

So far as I am aware, very few continued experiments with fertilizers have been carried out on the fruit crops in this country. Numerous experiments have been conducted in the United States and in Germany. The German investigators seem to have fairly well established the fact that the mineral constituents required per acre for the full development of fruit trees do not materially differ from that required for root and vegetable crops. Repeated extensive experiments have also proven that hoed crops, such as potatoes and sugar beets, make a better use of farmyard manure than fruits. Experiments carried out at the Diemitz Experiment Station and at Stassfurt in Germany seem to clearly indicate that in the case of core fruits, and especially with apples, that fertilizers containing the three essential mineral constituents, nitrogen, potash and phosphoric acid, can be used with profit, and that potash affects the results more than any other one constituent, nitrogen being assigned the second place and phosphoric acid the third.

It has been repeatedly noticed that when potash was not supplied, even though light dressings of stable manure were made every three or four years, the trees assumed an appearance of those grown under adverse conditions on poor soil; i.e., the growth of wood is arrested and the leaves are small and have an unhealthy color and are covered with yellow spots. After the fruit is matured, there is some growth of wood, and the next spring there is put forth an abundance of blossom, of which, however, few develop, owing to the lack of proper nourishment.

In spite of the fact that there is an abundance of phosphoric acid and nitrogen in the soil, most of the fruit falls off during the summer, and, in consequence, the yield when potash is not supplied will be very little greater than when no fertilizer is used. However, these conditions are not general; some varieties show a marked ability to thrive under unfavorable conditions, particularly in the fact that they are able to throw off the superfluous fruit which the tree is not capable of fully ripening. Lack of nitrogen in the soil has been shown to have a somewhat similar effect upon the development of the fruit, although not so pronounced, while the absence of phosphoric acid is even less noticeable. At Stassfurt, in Germany, in an experiment in which we are given the yields for eleven consecutive years from an orchard, we find that the total fertilizers used on the complete fertilizer plot during this period were worth $166.60. The increase due to the use of these fertilizers was worth $1,190.50, leaving a handsome profit for the use of the fertilizers.

Where the potash was omitted the results were very much decreased. German experiments have also fully demonstrated that the use of fertilizers has a very marked influence upon the yield of plums. Their results in general seemed to indicate that the yield of stone fruits is more influenced by phosphatic nitrogenous manures than the core fruits. It is possible that this is due to the fact that stone fruits have a larger kernal which is rich in phosphoric acid, and as the proportion of kernal to fruit is much larger in stone fruits than in core fruits, the former have the greater need for phosphoric acid. These results have been fully confirmed by fertilizer experiments on peaches reported from the New Jersey Experiment Station.

*Extract from an address delivered at the annual convention in November of the Ontario Fruit Growers' Associatino

Spraying Pays.—Last season sprayed orchards in nearly every case had very much better fruit than those that had not been sprayed. The cultivated orchards also had more and better fruit than those in sod. We find the growers who have large orchards, and make it their business to look after the fruit, are getting it. Those who simply sell what the trees produce without any care or attention, will soon have to market their apples at the evaporator.—R. J. Graham, Belleville, Ont.

Dormant Plants in Winter

William Hunt, Ontario Agricultural College, Guelph

PLANTS that are taking their winter rest in a dormant or partially dormant state must not be neglected, if good results are to be obtained from them next summer. The old adage, "Out of sight, out of mind," is too often applicable to this class of plants during winter. The different kinds of plants that are usually kept dormant in winter can be divided into two classes, viz., fibrous-rooted

Dormant Fuchsia Plant in Pot in January
Note dead leaves on plant. Plant in good dormant condition.—Fig 1.

and bulbous or fleshly-rooted plants, each requiring somewhat different treatment.

FIBROUS-ROOTED PLANTS

Plants such as fuchsias, abutilons (Flowering Maple), pot hydrangeas, roses in pots, Japanese Hibiscus, Aloysia citriodora (Lemon-scented Verbena), and even pot geraniums, and similar plants of a shrubby, deciduous or semi-deciduous nature, must not be allowed to dry out too severely at the roots. The roots of these plants, being of a fibrous nature, will not bear the drying out process that many of the more fleshy-rooted or bulbous-rooted plants will.

The soil in the pots of the fibrous-rooted plants should be kept barely moist, but not soddened with water or allowed to go to the other extreme and become dust dry. A cool temperature of about 35 degrees to 45 degrees suits these plants very well. The stems or growth also should be sprinkled with water about every week or two to prevent the growth from becoming dry and shrivelled. A fairly moist, cool cellar, basement or room, or a cool window, will suit these plants very well. It does not matter if the leaves all drop off, as this alone will not hurt them, unless this condition is induced by the soil becoming dust dry or the atmosphere becoming too hot and dry, conditions that are not desirable for resting plants successfully.

BULBOUS AND FLESHY ROOTED PLANTS

Tuberous-rooted begonias, amaryllis, gloxinias, fancy caladiums, tigridias, and achimenes, can be allowed to dry out at the roots to a greater extent than can the fibrous-rooted plants named. These should not, however, be kept in a dust dry condition for too long a period. If the pots with the bulbous-rooted plants named are stood away in a temperature ranging from 35 degrees to 45 degrees in a fairly moist cellar or room, they will require very little if any water during the winter, and then only a sprinkling once or twice so as to moisten about an inch of the soil. A better plan still is to sprinkle the outside of the pots well every week or two as required.

The gloxinia and caladium roots require a little more moisture, and a slightly higher temperature than that mentioned, as these are liable to suffer from dry rot if the soil they are in is allowed to become too dry and powdery. Gladioli corms will require no water if they are kept in a cool, not too dry, place. Covering the corms of gladioli with quite dry sand, sawdust, or soil will help to preserve them better than water, if the atmosphere is too dry where they are kept. Canna roots should not be allowed to become very dry, or the temperature where they are kept to drop below 40 degrees or 45 degrees. Dahlia roots can be kept very well in a cool, moist place at a temperature only a few degrees above freezing point.

In addition to the plants before mentioned there are one or two more easily grown plants that can be kept over winter in a partially dormant or resting state. The Imantophyllum or Clivias, and the Agapanthus umbellatum (African Lily), and several varieties of the Funkia or Day Lily can be kept very well in a cool room, basement, or cellar in a temperature of about 35 degrees to 40 degrees. These should not be allowed to dry out too much, as they are moisture-loving plants. The soil should always be kept barely moist. The three last-named species make splendid specimen plants for outdoor decorative purposes in summer time, when grown in large pots or tubs.

The two main factors to be considered in resting are temperature and moisture. The temperature should be as low as can safely be given above freezing point to keep them dormant without injuring them. A moist atmosphere and not too much water at the roots, just sufficient to sustain the life of the plants, and not to sodden the soil to induce rot or decay in the root system, are the conditions that will best suit dormant or partially dormant plants in winter.

Timely Suggestions

Spring will soon be with us. Have you made due preparations for it? Have you all the extras ready, such as labels, stakes, seed baskets?

Send for the seed catalogues advertised in THE CANADIAN HORTICULTURIST. Make up your list of seeds and other necessities, and order them in good time. Unless you order early you may be disappointed in finding that just the things you want most have been sold out.

Make hot beds during February. Use good stable manure, breaking it up finely and treading it down firmly.

During February thin and head back ornamental trees and shrubs. All transplanted stock that was moved last fall should be headed back before growth begins. Flowering shrubs that bloom on the new wood can be pruned back hard now to make an abundance of bloom for the spring.

Nothing is easier to grow than the common petunias. In the last twenty-five years plant breeders have so improved them that their small red and white blooms have given place to an almost inexhaustible variety of wonderfully beautiful flowers. If seed is sown in January and the plants grown in a night temperature of not less than forty-five or fifty degrees, strong plants will be had for use during the summer as porch or window box material. Bulbs that were bedded in the cellar can be brought into light now and by bringing them in at different times a succession of bloom can be had until outdoor flowers begin.

Dormant Fuchsia Plant Entirely Bare of Foliage
Tho young growth shows slight bud development. Plant in good dormant condition.—Fig 2.

Gardening as a Profession for Women*

Emilia Houlton, Calgary, Alberta

WOMEN can be clever in different ways—some by intuition, some by education, and some by a sublime audacity. Natural gifts are divided among us in a curious manner. For instance, a woman may have a great love for flowers, yet be totally unsuccessful in growing them. Again, while having a keen artistic eye for their beauty as she sees them growing, may have no sense as to the artistic grouping of them, if she should be required to lay out her own garden. Hence we see at once how necessitous it is to make sure that we have the necessary combination of natural gifts in order to be successful in whatever profession we may take up. Some people would have us believe that women cannot be successful as gardeners, though why they think so it is hard to say. There is no doubt that one of the chief drawbacks to the pursuit of gardening by women has its root in the expression: "To dig I am ashamed." A visitor arrives and finds the lady of the house doing her own gardening. Generally speaking, an apology is offered, as if there could be anything ignoble in doing one's own digging, or any work needing to be done in the garden.

A woman surely looks as well with a hoe, or rake, or knife, scissors, nails and shreds, nailing fruit, roses or other flowers against a wall, as at lawn tennis, or any other of those innocent games in which she is expected to take part. In fact, the very usefulness of the labor adds a fresh charm to those who undertake it, and Tennyson's "Gardener's Daughter" could never have looked half so fascinating had she not been training and making fast that rose shoot round the window. To the true gardener, the earth is as sweet as a nut, and she feels not the slightest repulsion in handling it. The very smell of the fresh earth is an antidote to disease, and most healthful to those who dig it or stir it up.

SOME HARD WORK, TOO.

In connection with the relation of women to gardening as a means of a living, very extravagant views exist. There are many who would have us believe that the work consists only of gathering fruits and flowers, dressing vases, arranging plants and such-like pleasant operations. Let us then assure ourselves that such work only represents the sunny side of a serious occupation. We must be prepared for the real hard work at the beginning, scientific study as our work progresses, and watchful care ever. To be a successful gardener a love for the subject is the first necessity, and a sufficient knowledge of botany to understand the peculiar properties of the organs of a flower.

SOME SPECIAL LINES.

One department of gardening where a woman can always be more successful than a man, because of her more patient nature, is in the improvement of a particular flower or vegetable, to do which she must find out what has been done with it by the trade growers, procure seeds of the most approved types, and work for an ideal, maybe enlarging the bloom, making it bloom more freely, or creating a new color, and, in the case of vegetables, procuring earlier, larger or finer flavored produce. Then again, for woman's deft fingers is the taking up of such work as cross-fertilization, and of hybridising plants.

I know of one lady in England whose sweet peas have not been raised by haphazard methods, but with a fixed idea, and a well considered purpose. The fine form of the blooms, sometimes with double standards, and the refined texture of the petals from outdoor pickings, the daintiness and the purity in the colors, the delicacy of the tints and markings, all show great enterprise on the part of the grower. There are very many annual plants that could be taken in hand in a similar manner, but the work is too delicate, and the patience needed too great for the generality of men.

MAKING A GOOD LIVING.

Most professions open to women, which are suitable to them both as women and workers, are, generally speaking, overcrowded, so that the desirability of breaking fresh ground is very apparent. It is not a wild idea of my own conception, but one which is drawn from the facts that many women today, both in the old country and also in Canada, are getting a good living from the profession of gardening. Let us be quite clear in our minds that while a good living can be made, such a thing as a big fortune is a remote possibility. To the energetic, intelligent woman, other possibilities of adding to the income in connection with her garden would occur, such as keeping bees and poultry. It may not sound very feasible at first, perhaps. A man would say, how about keeping the varieties of flowers distinct? To a woman gardener that would be easy, as she would keep her choice blooms covered with a fine gauze to protect them from the bees, and the poultry would be kept in wire runs, say between the rows of small fruit trees, allowing space sufficient to prevent the birds reaching the fruit, the poultry manure being beneficial to the trees.

PHYSICALLY BENEFICIAL.

However, let us return to the question in hand—"Gardening as a Profession for Women." Surely everyone will admit that the fresh air and sunshine which environ those at work in the garden is equally beneficial to women as it is to men. Admittedly certain work is hard in connection with the preparation of the soil in spring. The woman who is making gardening her profession must hire some help; therefore, man and machinery can be brought to her aid for the heavier work.

A Well Arranged Artistic Small Garden that Promotes Health and Gives Pleasure

ADAPTED TO THE WORK.

In floriculture woman is certainly at her best. Her innate refined taste for coloring, her natural artistic sense of arrangement, combined with the gift of love for all that is most beautiful in nature, peculiarly fits her for this niche in the professions. Flowers need very careful handling, gentle fingers are required when picking out the faded leaves or withered pruning or grafting. How suited, then, for these arts are women. Some men will say—How will women stand the rainy and cold days? My answer is this—She would do as the gardeners do today. Wet days she would employ herself with work needing attention in the greenhouse or potting shed; on cold days she would clothe herself warmer and work harder, and so keep herself warm.

It is not my purpose in this paper to

*The substance of an address read by Mrs. Houlton at a meeting of the Calgary Horticultural Society.

suggest that women should hire themselves as men do, to work for others by the month, but rather to show how easily a women with the ordinary business capacity and the natural gifts necessary for the success of horticulture can enter a good profession, and be entirely her own mistress. In these days when women go to college, and have agricultural colleges open to them, there is nothing whatever to hinder women from competing with the sterner sex, and becoming experts in this profession.

The highest salary a woman stenographer or teacher hopes to attain does not exceed $100 a month, and it is not too much to say that a good woman in business for herself as a horticulturist should at the least make $150 to $200 per month, as in addition to her regular business she would soon be in great demand for designing flower beds, and advising as to the laying out of grounds generally, and for which part of her artistic work she can demand a fair remuneration, for brain work certainly demands higher wages than mere manual labor.

Our House Plants in February

H. E. Gould, Sussex, N. B.

PLANT life, like the human, during February seems to feel the approach of spring. The lengthening days, the brighter sunshine, all speak of the new growth and life to come; and a little extra care becomes necessary as regards our plant friends. They require a little more water on the soil and much more on the foliage than during the past few months, and some hardier sorts will even begin to call for pot room.

The palm during the darker months has about stood still. The tips of the lower leaves have browned a little. Clip these to a point, following the natural outline of the leaves, yet removing as little of the sound leaf as possible. Wash the foliage more frequently, once a week at least, using plenty of Castile soap in the water. (Don't use a cheap soap.) If your palm is in a jardiniere scrub the inside of the dish thoroughly with washing soda. Let it air out well in the sunshine before replacing the palm. This treatment should be accorded to all your jardinieres and other earthen receptacles holding potted plants, about twice a year, and more especially in February. Look to the drainage of your plants. See that there are no worms in the soil to cause that stagnant, wet condition so fatal to plant growth.

Stir the surface of the soil in your palm pot with a sharp stick, using care not to break roots, which are, however, in the case of this plant practically near the bottom of the pot. If you find that there are any signs of roots appearing through the drainage the plant had better be repotted. Use a pot one size larger only. Pack the soil about the old ball of roots with a thin flat stick. Do not disturb the lower portion of the old ball of roots as you are very apt to break the tap root, a serious injury to a palm.

CARE OF FERNS

Your ferns, such as the small table sorts, Pteris cristata, Polystichum, or Hollyferns are beginning to look pretty shabby, especially those on the dining table. If they are very dry and forlorn looking it is a thankless task to try to resuscitate them; but if there are a few leaves with other new ones showing themselves, wash off some of the old soil in warm water and remove the very bottom roots (in pot-bound plants these are usually dead), and repot in fresh soil in as nearly the original sized pot as possible. Keep in a shady window and water sparingly until new growth appears. Spray the tops as often as you can.

Your sword ferns must be watched for insects. The scale and mealy bug multiply rapidly from now on. Any good scalecide, as advertised by seedsmen, is of value; or an old tooth brush, Castile soap, and some spare time will soon clean a plant. Cut off the runners that appear over the edge of the pot. They only sap the plant and do not add to its appearance. Remove all unsightly leaves and shower the plant as often as possible.

SOFT WOODED PLANTS

Geraniums, heliotropes, fuchsias and soft wooded house plants should be overhauled during this month, straggling branches pruned back and the plants generally trimmed to a compact shape as a foundation for the spring growth. Unless very much root bound so that watering becomes difficult, it is better to wait until March for repotting with this class of plants, as there is danger in starting them too soon.

The daffodils should be at their best from now on. These bulbs should be saved if one has a garden. Just leave them in the pots or pans after they have flowered. Gradually withdraw water. When dry put them aside in a cool place until fall, when remove bulbs and plant in the garden. They bloom the following spring.

Primroses of the Chinese type are now in the height of their flowering period. Don't allow water on the foliage or in the crown of the plant, but apply water to soil near the edge of the pot. A temperature of 50 degrees and good light, no sunshine, adds to the richness and color of both their foliage and bloom.

THE RUBBER PLANT

Should you have a large rubber plant which is getting too large for your room or which is becoming one sided, this is a good season to prune it. As this is a plant that loses sap when cut to such an extent as to injure the plant, you must make a few preparations before removing the branches. Have a little melted paraffin wax ready, just hot enough so that you can put your finger into it, and a very sharp knife. Cut off the branch just above and close to an eye or joint of leaf. Apply immediately the wax, smoothing it down over the wood with your fingers, putting it on until the sap flow is stopped. A few days later, if it looks badly, it can be removed with a knife. After the operation the plant

Incarnata Grandeflora Begonias as Grown by an Amateur

These begonias were grown by Mrs. W. D. Swazie, St. Catharines. These beautiful plants bloom for three to three and a half months every winter.

should be kept a little on the dry side until signs of new shoots appear usually close to the wounds.

THE RED SPIDER

All plants liable to the attacks of red spider, such as palms, rubber plants, roses, calla lilies, etc., should receive more and more frequent sprayings on the under side of the leaves as the sunshine gets stronger. An old throat atomizer is a splendid thing for this purpose. With it plants can be well sprayed close to lace curtains without the curtains being damaged.

Some Gardens and Gardeners in the Old Land

Miss M. E. Blacklock, Toronto, Ont.

THE next garden to be visited was Anne Hathaway's at Shottery, where dear, old-fashioned things such as Madonna Lilies, hollyhocks and other old-time favorites, still grow in artistic confusion, as they are supposed to have grown when Shakespeare was making love to her. And then Shakespeare's garden, where representatives of all the flowers he mentions in his writings are to be seen. To be frank, I must say that they do not look as if they were tended by a hand that loved them, but perhaps I am mistaken.

KEW GARDENS

Kew is the objective point of gardeners, and, in truth, it is a delightful place. The rock garden there lies in a little valley with sloping banks of rocks so placed as to give all varieties of exposure, and filled in with soil with requisite characteristics for the particular plant it contains. Everything one ever heard or read of in Alpines one finds there, sooner or later.

My first visit was on the 27th of May. The lilacs were nearly over, but the hawthorns were in perfection, a small weeping one (Crataegus oxyacanthoides, var. flore puniceo), a lovely single deep rose, was a perfect fountain of bloom. Wistaria draped an arbor-like building with its long racemes of mauve flowers. Irises,, great beds of them, were just beginning to bloom and the rock garden was entrancing. Notes were made of everything in bloom, to get an idea as to how the succession was kept up.

Another visit a week later, on the 3rd of June, found rhododendrons the great attraction. Large beds, each of one variety only, made wonderful masses of color, the one named "Mrs. William Agnew," an exquisite pale pink, with edges of petals deepening into rose and no hint of magenta about it, seemed the most beautiful and was quite as effective in the distance as it was close to.

A FORMAL GARDEN

The formal beds were arranged rather more tastefully than usual. For instance, a bed of tall mauve tulips grew out of a mass of blue forget-me-nots. Another of brilliant crimson tulips had a white saxifrage (Saxifraga Wallacei) as a carpet, and so on. Later in the season, a bed of Statice latifolia, blooming over some small pink flowered bedding plant —what it was has slipped my memory— had a pretty veil-like effect. Kew is the spot to straighten out one's difficulties in nomenclature, though even Kew is not quite infallible. The Botanic Garden, however, is a very interesting spot and one can spend many hours there profitably studying the different species of one's pet plants.

ROSES AT WISLEY

The Royal Horticultural Society's Gardens at Wisley are delightful. They should be seen in early spring when the Japanese Primroses (Primula Sieboldii) are out. They grow there like weeds, down by the water garden and in the damp ground beyond it, where they are shaded by trees and shrubs. These grounds are laid out naturally and are very attractive.

On each side of a broad driveway, as you enter, there are wide beds of roses, backed by climbing varieties trained to poles, placed tripod fashion. It was mid July when I was there and there was a splendid show of bloom. Three of the showiest of the climbing ones were Ard's Pillar and Ard's Rover, two lovely crimsons, the former strongly perfumed, the latter perhaps the handsomer, but not so sweet, and Mrs. W. Grant, an exquisite glowing pink, tea scented.

IRIS IN WATER

There is a charming wild garden, which well repays a visit, and below it is the water garden, consisting of a rather sluggish stream, which widens here and there into pools on which water lilies float lazily, great golden-hearted flowers of many lovely tints. Clumps of Japanese Iris (Iris laevigata, syn. Kaempferi), Sagittaria and many other waterside plants grew, partly in and partly out of the water, as their habit is when they are allowed to do as they please. As one looked up the stream, a fine clump of firs, with a magnificently colored Colorado Blue Spruce in the foreground and a Gunnera with its colossal leaves bending over the water, made a picture well worth a journey to see. A wide perennial border and many charming little bits of shrubbery, trial beds of phlox, sweet peas and a particularly fine lot of the various species of campanulas made a two days' visit all too short.

STUDENTS AT KEW

Not the least interesting part of one's stay is the coming in contact now and again, as one wanders around, with the students. Two of these with whom I fraternized were charming young men, enthusiastic botanists and lovers of flowers. They were most gentlemanly, and gave me any help or information I

The Lawn and Flowar Beds at the Grand Trunk Station, Hamilton, Ont.

Gradually Canadians are beginning to pay more attention to the improvement of our public places. In this movement our two leading railway companies are taking a prominent part. Imagine what this station would be like were it not for this garden spot. The planting of trees along the street to the left would effect a marked improvement by shutting off the view from passing trains of the cheap buildings there to be seen.

wanted, willingly. Both happened to be Scotch. The younger of the two was a brilliant scholar and had just carried off the gold medal, and I forget how many scholarships. I had lodgings where he boarded, and his thirst for information regarding our Canadian Flora was wonderful. His ambition lay Kew-wards, and there is little doubt he will make a name for himself, if he does not ruin his health by overstudy.

HAMPTON COURT

The big border at Hampton Court is well worth seeing. It is a long, straight border, very wide and a blaze of flowers, chiefly perennials, but annuals are used to fill up odd spaces, probably where bulbs have been in the earlier part of the season. Amongst these a rich, crimson Wistaria was the most brilliant thing there, though some very rich colors in Potentillas were very fine. To the left of this border were large beds of various showy things. One of Delphiniums made a grand mass of blue against the green background of the trees. There was also a very fine bed of pæonies, just as their prime. It was the 21st of June.

The trip from Hampton Court down the Thames by boat to Richmond is most enjoyable. On each shore are picturesque house boats, cottages and handsome residences, with beautiful grounds coming to the water's edge, and as the little steamer goes obligingly slowly, one has ample time to enjoy the ever-changing view.

(To be continued.)

First Prize Asters, from Mr. Robinson's Garden

Here were grown the first prize Mikado pink asters shown at the exhibition of the Barrie Horticultural Society, a number of which measured seven inches in diameter.

Success With Asters

Mrs. A. C., Barrie, Ont.

IN The Canadian Horticulturist of April, 1910, there was an interesting letter from Mr. G. A. Chase, of Toronto, in which he gave part of his experience with asters. It was so much like my own former attempts that I determined that at some future time I would give my experience also, in the hope that it might be helpful to someone.

Like Mr. Chase I petted and worked with my plants each year, hoping that I should have better success, and trying everything I ever heard of in the way of cultivation, fertilizers, and different varieties of seed. Sometimes I bought plants from the greenhouse. At the end of seven years of patient work and hope deferred, I could not say that I had ever grown a perfect aster. That was three years ago that spring.

One year we were very busy and I had not time to prepare a flower bed. As I had purchased a full collection, Truflant's Pæony Perfection, twelve colors, and felt like giving them a trial, I sowed them in drills between the rows of Dutch sets, intending to transplant them when they were ready into the flower bed. They were never moved. The onions were bunched as soon as they were ready. They got only one weeding, and then the weeds were nearly as tall as the onions. A lot of the asters were pulled up with the weeds and were set in again.

The ground had been dug the same day that the seeds were sown, and had not been touched the fall previous. It was rather damp, and part of it was under a large apple tree. Some common stable manure had been dug in. No other fertilizer was used. The bed was not watered once during the season—but such asters! Gorgeous was no name for them. Colors of the richest reds, purple black, pure white, rose pink, like sheaves of roses. Each plant was an armful in itself, and they continued blooming till their dear heads were capped with snow. We took two prizes with them that year, and I was so tickled it nearly took my breath away. No worshipper at any shrine could have been more devout than I at my bed of bloom.

ANOTHER SUCCESS

The following spring I sent across the line and bought a collection of twelve varieties, mixed colors of each variety. We sowed them in the open, where we had dug up an old strawberry bed, and did not manure them at all, and only gave them a douche of soapsuds every week, and these were, if possible, finer in every way than those of the year before. There were so many varieties—varying from the tiny Jewel or Ball to the feathery Ostrich Plumes. When our exhibit was ready for the exhibition, we counted thirty-three varieties and colors. We captured two prizes with them. This year the plants were as healthy as could be under much the same treatment, but a new enemy, a fly of some kind, destroyed the bloom before we found the remedy.

Perhaps some will think that I am advocating neglect and carelessness. Not so, for nothing gives as much in return for so little attention as flowers of all kinds. I do think, however, that in the case of asters, and some other hardy flowers, one can easily be too attentive. I do not consider it wise to work too deeply around the roots after the flowers bloom. A mulch would be much better, and they need lots of ventilation, but not hot winds, which leave the roots exposed. A little kerosene in the weekly wash of soapy water will kill most of the aster enemies.

Cold frames and hot beds will be wanted very soon. No garden is too small for a cold frame. Lettuce, radishes, parsley, beets, carrots, beans, can all be helped along as early crops, by being grown in a cold frame.

Tomato Growing Under Glass*

Prof. W. S. Blair, Macdonald College, Que.

THE growing of tomatoes under glass or "Forcing tomatoes," as it is termed, has been carried on in an experimental way on a commercial basis during the past four years at Macdonald College. The object is to secure information as to its value as a commercial greenhouse crop.

The seed is started in flats. As soon as the true leaf appears, or in about three weeks' time, the plants are transplanted into other flats, spacing the plants three by three inches apart. Here they remain for another two or three weeks, when they are potted into three and one-half inch pots, where they remain until planted into permanent quarters. The plants as a general rule may be carried in the pots for three to four weeks. The plants should not remain in these pots too long or they will become pot-bound and get stunted. If it is necessary to carry the plants longer before benching it is advisable to shift them into a larger pot.

It requires from four to five months to bring a forced tomato plant into bearing. Seed started the first of July will give good plants for benching in six weeks' time, whereas seed started the first of November will give equally good plants only in ten weeks' time. It requires a month longer to develop a plant during winter for benching.

One house was planted with Livingston Globe tomatoes grown as follows: Seed sown July 4th, transplanted to flats July 15, potted into three and one-half inch pots August 1st, planted permanently August 24th, first ripe fruit harvested November 11th.

The plants were set 18 inches by 18 inches apart, with a space of two and one-half feet apart between every fourth row running lengthwise of the house. The yield was 1.65 lbs. per square foot of bench soil. The tomatoes netted twenty cents per pound, giving thirty-three cents per square foot of bench soil occupied by the plants. The same bench was planted January 19th from seed sown November 6th. Transplanted into flats November 26th, transplanted into three and one-half inch pots December 15th, and benched January 19th. The first fruit was picked April 27th, and the last was picked June 21st. The plants were spaced 18 inches by 18 inches apart similar to the early planting. The yield per square foot was 1.42 lbs., which netted eighteen cents per pound, or 25.56 cents per square foot of bench area. This gave a total of 58.56 cents per square foot of bench area from July 4th, 1909, to June 21st, 1910.

One house from seed sown November 9th, transplanted into flats November 30th, potted into three and one-half inch pots December 29th, and planted February 1st, produced ripe fruit April 10th. The plants were spaced fifteen inches apart and produced four pounds per plant, equal to 3.1 pounds per square foot, which at fifteen cents per pound would equal forty-six and one-half cents per square foot for bench space from February 1st to end of season.

WHEN TO START THE SEED

Experiments conducted at various times would seem to indicate that the seed for a profitable fall crop should be started the first of July and for the spring crop the latter part of October or early in November. It would seem necessary to get the fruit well set by the middle of November for the fall crop for after that date with the short days it is extremely difficult to secure a satisfactory blossom cluster and the flowers do not set fruit well even if carefully pollinated.

Plants started early in November should be ready to bench early in January as soon as the July started crop is finished. In this way two crops are taken from the bench in one season. The yields shown here are not as large as may be expected, under average greenhouse conditions for the reason that various tests were being conducted, and the yields are an average of the yield from different plots. Four pounds per square foot of bench area can be safely figured on for the season. In very few cases have we gone below that yield. The yield will vary from three to five pounds per plant according to the season. Greenhouse tomatoes can be easily disposed of at fifteen cents per pound for the season, which would net the growers sixty cents per square foot.

The cost of heating is much greater than for lettuce. The houses have to be maintained at a temperature of about sixty to sixty-two degrees at night and ten degrees higher during dull days.

SINGLE STEM SYSTEM

Tomatoes are usually trained to a single stem. This represents considerable work, as all lateral growths have to be pinched off as they start out at the base of the leaves. If it is desired to train to two stems one of the first lateral branches are allowed to grow and it is treated the same as the other branch, all lateral growth being removed as it forms. As already stated, 18 inches by 18 inches apart seems to be a satisfactory distance, providing a two and one-half foot space runs lengthwise of the house between every fourth and fifth row. Rows two feet apart east and west and eighteen inches north and south serve well in a greenhouse where no such space is given.

The plants must be supported. For this purpose horizontal wires may be run along lengthwise of the house at the base of the plant and another placed directly over this six feet or seven feet higher. Between these, strong cord such as binder twine, may be run perpendicular, one string to each plant and the plant tied to it with raffia. Care should be taken to wrap raffia once around the string to prevent slipping and place it under the leaf so as to support the plant as well when carrying a weight of fruit. No. 10 galvanized wire may be used in place of string, and it is much better, but the first cost is greater. These seven and one-half feet long cost about one and one-half cents each. It is necessary to have small wire along the top to support these wires, one end being stuck in the ground by the plant and the other fastened to the upper wire. For the smaller upper support wires No. 18 galvanized wire is best.

If attention is given to the pollination of the tomato there will be a much less number of small, medium-sized and rough tomatoes. The most satisfactory way with us is to fasten a rabbit's tail to the end of a stick and brush the plants with it, going from flower to flower. The pollen catches on the fine hair, and if the brush is kept clean by occasional washing good work can be done.

THE POLLEN

Should there be a succession of sunny days and during approaching spring the pollen may distribute sufficiently by tapping the vine with a padded stick or shaking the plant. The pollen is discharged most freely in a hot, dry atmosphere, therefore, to keep the house at a high temperature during the day favors the bursting of the pollen sacks even in cloudy wather. The best time for pollinating is between eleven and twelve o'clock. The pollen is not discharged from the anthers until after the yellow petals have fully expanded and commenced to wither slightly. When pollen falls upon one side of the stigma a one-sided tomato results. The amount of pollen supplied to the stigma within certain limits determines to a very great extent the size and smoothness of the tomato.

Tomatoes will not do at a low temperature. Satisfactory plants cannot be grown in a lettuce house temperature. If plants are to be started some provision must be made for this part of the house to run at 60 degrees at least.

High, warm, sandy soil and nearness to a large body of water to prevent late spring frosts, is necessary to grow tomatoes and cucumbers for the early market.—W. W. Hilborn, Leamington, Ont.

* Extract from a paper read at the recent second annual convention of the Province of Quebec Vegetable Growers' Association. Further information about these experiments was published in the Canadian Horticulturist for August, 1910.

Growing Tomatoes in the Greenhouse at McDonald College
(See article on page 36.)

Insects That Attack Vegetables

L. Caesar, B. S. A., O. A. C., Guelph, Ont.

ROOT maggots are almost a cause of despair to vegetable growers and to entomologists. About one hundred different kinds of remedies have been carefully tried against them, and only a few of these found valuable, in fact I know of no really satisfactory and economical remedy for these insects. There are three different kinds of root-maggots, though they all look very much alike. The first, Pegomya brassicae, attacks cabbage, cauliflower, turnips, radishes and certain closely allied wild plants like hedge mustard and cress. The second, Pegomya capetorum, attacks onions, and the third, Pegomya fusciceps, attacks chiefly the roots of corn and beans. This last species is seldom very troublesome, so we shall not discuss it.

The adults of the root-maggots are flies very like house flies. The life history is briefly as follows: The flies emerge from the soil in spring, lay their little, white, elongated eggs on the ground around the base of the plants, or sometimes on the stem itself. In four or five days the eggs hatch and the tiny white maggots at once attack the neighboring roots. When full grown the maggots cease to feed and change to a brownish pupal condition in the soil close to where they feed. After a few days adult two-winged flies emerge from these cases, and lay eggs for a second brood. These adult flies resemble the house-fly but are smaller and more slender. In some cases there seems to be a third brood. The winter is spent by the cabbage root-maggot in the pupal stage in the soil, and by the onion root-maggot in the adult stage. The species that attacks the cabbage and closely allied plants seldom does much damage after the end of June, whereas the onion root maggot continues to be destructive all the season.

A means of control is the destruction of weeds like mustard, cress and shepherd's purse, which belong to the same family as the cabbage and radish, and some of which are host plants for the insects.

Another means is the use of carbolic emulsion or of white hellebore. The carbolic emulsion is made as follows. Boil one quart of soft soap or one pound hard soap in one gallon of water. When boiling add one-half pint of crude carbolic acid. Boil for a few minutes longer and stir thoroughly until well emulsified. The emulsion can then be stored away and will keep for several days. When using, it should be diluted by adding fifty gallons of water to each gallon of the emulsion, and sprayed directly upon the growing plants and around the roots once every week from the time they appear above the ground or the cabbages are set out until about the end of June. Onions may require later treatment.

The hellebore concoction is made and applied as follows: Steep two ounces of good fresh white hellebore in one quart of water for one hour, then dilute with water to make one gallon of the decoction. Apply with a watering can with the rose or knob removed a few days after the plants are set out; five days later apply again, and again in five days after this, and a couple of times afterwards at an interval of a week until the plants have got thoroughly established. About one teacupful should be poured around the base of each cabbage plant. In clay soil especially, it may be necessary to remove a little earth first from around the stem to prevent the liquid running off.

Each of these remedies has given good results but only when thoroughly done. Great care must be taken to do them early enough to prevent the maggots from getting a good start, for if this once happens no known remedy can be relied upon to destroy them. The hellebore decoction is gaining in popularity of late years compared with the other, and I have met several men who have had good results from it. Either of these remedies can be used for onions as well as for cabbages or radishes.

Tomatoes for the Factory

The Indiana Experiment Station at Purdue has issued a bulletin, No. 144, on growing tomatoes for the canning factory. It may be summed up in the following five points:

1. It is necessary that greater care be exercised in the growing of the young plants. Millions of inferior plants are now set. They may be the result of poor seed or unskilful growing. In any case, they cut down the yield and profit from the crop.

2. Prepare the ground more thoroughly, and give more time, labor and money to drainage and fertilizing. Thousands of farmers are failing in growing tomatoes because they do not realize the soil and cultural requirements of the plant.

3. Cultivate constantly and thoroughly. It is probable that neglect of cultivation is responsible for a greater proportion of unprofitable tomato yields than any other single factor entering into the production of the crop.

4. Handle vines carefully during the picking season. In many tomato fields it was observed that careless picking and rough treatment of the plants so cut down the total saleable product that the cash returns barely paid for the expense of growing and marketing.

5. Plant smaller areas and practice more intensive methods of culture.

Within certain limits, vegetable growing pays in proportion to the amount of manure added to the soil.—George Syme, Jr., Carleton West, Ont.

The green cabbage worm makes inroads on the cabbage and cauliflower plants, but it is easily kept in check, either by hellebore or paris green. The best plan is to mix these ingredients with land plaster or lime and dust a little in the heart of each plant. The hellebore is most satisfactory.

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H. BRONSON COWAN, Managing Director

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EDITORIAL

MONEY FROM SPRAYING

For some months past experienced representatives in Ontario of British capitalists have been leasing neglected orchards at a fair rental and for a period of years from fruit growers who have not appreciated the change that is coming over the apple situation in Ontario or the earning powers of their orchards. The parties interested in this movement propose leasing some 6,000 acres of these neglected orchards. Their intention is to introduce modern methods in their management, and their expectation is that they will obtain a liberal profit on their outlay. The success that has met pioneers in this movement, such as Mr. Joseph Tweddle, of Fruitland, is an encouraging omen of success.

Such a movement will have very far-reaching effects. Aside from the fact that several thousand acres of orchard in Ontario are likely to be increased to many times their present value, the value of the educational effect on the owners of the orchards when they see other men making money out of a part of their farms they had considered not worth attention, together with the influence on owners of neighboring orchards, can hardly be estimated. Each orchard will become a centre of influence working for the advancement of the fruit industry of Ontario

But why should owners of orchards leave it for someone else to come along and make profits out of their orchards when they themselves might just as well do so? Practically every good sized apple orchard in Ontario might be a regular gold mine for its owner if properly handled. This has been amply proven in the case of scores of orchards during the past few years. Many orchards which had been condemned by their owners as worthless, and in some cases were actually being dug out, have been made to return a yearly profit exceeding what the owner would have originally considered a good price for both land and orchard. There are hundreds of orchards in Ontario and in others of the older provinces where equally good results may be obtained.

The first step necessary is to buy a spraying machine and prepare to use it this spring. In the case of owners of small orchards three or four can often club together and buy one machine. The time to consider the make and size of machine is right now. In a few weeks factories will be running overtime, dealers will be unable to secure the machines fast enough to fill their orders, and there will be a general rush that it is well to avoid. Decide upon the make of machine that will suit your purpose, and then buy it and use it. The results will follow.

DEMONSTRATION ORCHARDS

The British Columbia Government is establishing some twenty demonstration orchards. The methods might well be studied by the Agricultural Departments of the other provinces.

The object of this work is to demonstrate the results to be obtained by means of proper methods of culture for the first five years. The government will bear the cost of plowing, preparing and planting the trees and furnish the stock free f.o.b at destination. The owner will bear all cost of spraying and cultivation and agrees to follow the instructions given by the Department and allow the orchard to be used for public demonstration at any time. The agreement is to be binding for five years. After that time it can be terminated at any time by either party giving six months' notice.

The government of British Columbia is doing more to develop the fruit interests of the province than is being done by any other provincial government. The Chief of the Horticultural Division has under him four assistants who each devote special attention to the requirements of the fruit interests in specified districts of the province. With such an organization and by means of its demonstration orchards, box packing schools, spraying regulations and in other ways, including the sending of a market commissioner during the shipping season to the markets of Western Canada, it is doing invaluable service for its fruit growers. Fruit growers in the east should make their influence felt and insist that their governments shall do more for them. The best way in which they can do this is to tell their governments exactly what they want. They should not only ask for aid, but they should specify the form they would like that aid to take.

OUR HORTICULTURAL SOCIETIES

The reports published elsewhere in this issue of the work accomplished last year by a number of the horticultural societies of Ontario illustrate clearly the elevating and beneficial effect these organizations have where ever they exist. As we leave the pioneer days behind us the need as well as the opportunities for such work become more and more apparent.

The separation of the horticultural from the agricultural societies has worked out to the distinct advantage of the former. Instead of confining their efforts mainly to the holding of an annual exhibition in connection with the fall exhibition of their local agricultural society, as was done formerly by a number of societies, these societies have broadened out in their work and have thereby increased their usefulness. Directors of societies will do well to look over carefully the reports referred to with the object of gaining suggestions for new lines of endeavor.

There are special avenues of work that as yet have not been followed as they might have been. Much can be done to reduce the bill board nuisance. Even if our towns have not the power to regulate this matter, much might be done to form a strong local sentiment against the erection of such offences to good taste and in many cases good morals as well.

Much more can be done to beautify school grounds. Many schools still stand on bleak lots unadorned by either a tree, shrub plant or flower. Brought up among such surroundings children cannot be expected to love a taste for the beautiful when they are older.

Towns and villages cannot have too many breathing places for their citizens. Horticultural societies should urge the improvement of present parks where possible and also the purchase of points of vantage such as, triangles, hills or ravines that may be obtained at a reasonable figure. How often has a triangle between streets, a hill, ravine or other waste place which could have been bought for a reasonable amount been sold for the erection of some mill or factory

and thus the town has lost the opportunity of having another play ground for the benfit of its people. These are only a few suggestions, the details of which can be worked out to suit the local conditions of any town or village. A number of societies have accomplished work of this character. More might.

THE NATIONAL APPLE SHOW

The directors of the Ontario Fruit Growers Association have decided not to attempt to hold a national apple show for the east next fall. The intention is to hold the show in the fall of 1912. In some ways it is disappointing that the show will not be held this year. British Columbia made a success of its show with less than a year's effort. On the other hand the people of the east are not as familiar with the holding of these monster events as are the people of the west, and therefore, may require more time to organize properly.

The delay means that more will be expected of the show when it does take place. For this reason preliminary organization work should be started forthwith. Otherwise, much of what it is hoped to gain by the delay will not materialize. If the event is to be made a credit and a benefit to the east it must be conducted on very broad lines. This means that time for preparation must be used carefully and wisely.

From now on every fruit grower in Ontario and Quebec should keep the holding of this great show before him and plan his work accordingly. He should study to see what he can do to aid it and what benefit can be made to him and to his section. Our readers are invited to suggest through THE CANADIAN HORTICULTURIST ways and means of making this in every sense of the term a National Apple Show.

RETURNS FROM ORCHARDS

A recent bulletin issued by Cornell University shows that there are a million apple trees in Niagara County, N.Y., which produce a net income of $100 per acre. Though this is not a large yield, still it is away ahead of any apple county in Canada. But few Canadian apple growers clear $1,000 out of a ten acre apple orchard every year. More could and should. The average, including that of the good, bad and indifferent fruit grower, is much less.

In Niagara county an average of forty trees per acre would mean that there are 25,000 acres which at $100 per acre would mean the tidy sum of $2,500,000 revenue that this county produces from its apple orchards. These results are due to the careful attention Niagara county fruit growers give their orchards. Corresponding effots by our Canadian apple growers would produce corresponding results in our best apple districts.

At the last regular monthly meeting of the Toronto branch of the Ontario Vegetable Growers' Association, the contract for plant baskets and boxes for the season was awarded to Wm. Rennie & Sons; that for bundling twine and Paris green to Steele Briggs and that for bushel boxes to Barchard & Co. It was decided to hold an At Home in the early part of February. The annual report of F. F. Reeves to J. Lockie Wilson, showed a membership of 217 members and a thriving condition of affairs.

It pays to advertize. Try it.

PUBLISHER'S DESK

Our Cover Illustration

Our frontispiece represents what will be a novel scene to many of our readers, as in most parts of Canada the lowly ox has been released from the bondage of the yoke. An up-to-date spraying outfit drawn by oxen will look to a western man like the meeting of the old and the new. In Nova Scotia, however, there is a constant demand for well trained ox teams for use in the lumber trade so that orchardists can always dispose of matured oxen at high prices. One advantage of working oxen in an orchard is that there are no whiffletrees to injure the bark and tools can be used much closer and with more safety than with horses. It will be noted that the yolk is so attached that the oxen pull by the forehead and not by the shoulder as is the practice with Ontario oxen. Experiments have shown that by this method the team can develop greater strength than where the shoulder yolk or a collar is used. The oxen and spray outfit belong to Mr. S. C. Parker, Berwick, N.S., Secretary of the Nova Scotia Fruit Growers' Association.

Special Issues

As far as possible we aim to make the contents of each issue of THE CANADIAN HORTICULTUAIST timely and to the point. In this issue special attention has been devoted to spraying. Next month the same subject will be dealt with again and prominence will be given to orchard planting and kindred topics. The April issue will be our "Garden Annual." In this number interesting and instructive articles and illustratons pertaining to the flower garden will be emphasized.

We feel that there are many hundreds and possibly several thousand readers of THE CANADIAN HORTICULTURIST who could write entertaining and helpful articles for the benefit of their brother and sister growers if they but would. Why do you not do it? What we desire are letters from our readers and sharp, clear photographs when possible, giving the results of their personal experiences in their gardens and orchards. Will you not send us yours? We may not be able to use all the material we receive but we will at least use the best of it and thus aid many beginners and even older hands as well, to do better.

Divergent Views About the Tariff on Fruit

The reciprocity or freer trade negotiations that have been in progress between Canada and the United States, led during January to the subject being discussed by various organizations representing the fruit interests in different parts of Canada. There is a wide diversity of opinion on the subject. When the monster deputation of farmers waited on the Dominion Government in Ottawa in December, a request was made for freer trade with the United States in fruit. This request was presented by representatives of the Nova Scotia and New Brunswick Fruit Growers Association and by a leading officer of the Ontario Cooperative Apple Growers Association. The request was made more particularly as it applied to apples but covered all varieties of fruit and was presented in spite of a telegram of protest received from growers in the Niagara District who feared that freer trade in fruit might work injury to the Canadian growers of tender fruit.

The Best Results

"I have received a greater percentage of orders through requests for catalogues, which have come directly through my advertisement in THE CANADIAN HORTICULTURIST, than I have my advertisement in any other paper. I was obliged to reduce my advertising space during October, as I was almost sold out of my selected Hyacinths, as well as many varieties of Tulips, although I had a large stock of both. I attribute this largely to my advertisement in the THE CANADIAN HORTICULTURIST."—Robert T. Pinkerton, Montreal.

BRITISH COLUMBIA VIEWS

Early in January the Central Farmers Institute of British Columbia met in convention in Victoria with forty delegates present from all parts of British Columbia. A resolution was passed stating that the convention viewed with alarm the movement of the grain-growers of the prairies for reciprocity in natural products with the United States, and asking on the contary that the duties on fruit entering Canada should be raised so as to make them equal to the duties now levied on fruit entering the United States.

ONTARIO FRUIT GROWERS

At a meeting of the directors of the Ontario Fruit Growers Association held in Toronto about the middle of January the question was discussed for the better part of two days. Opinions were much divided. The apple men wanted a lower duty while the small fruit and peach growers were satisfied to let the tariff remain as it is, the United States duty being only half that of Canada.

In the end the grape growers agreed to a reduction of one cent of their two cent a pound duty in order to aid the apple men in obtaining a reduction in the United States duty of seventy-five cents a barrel to one more on an equality with the Canadian one of forty cents a barrel.

RESOLUTIONS PASSED

The following resolutions were adopted:

Moved by J. E. Johnston, Simcoe; seconded by W. H. Gibson, Newcastle, that the existing tariff on apples between the United States and Canada is unfair, and we the Fruit Growers' Association of Ontario respectfully ask that our Canadian representatives will endeavor in reciprocal trade negotiations to have the United States tariff on apples lowered to forty cents a barrel or less.

Moved by W. H. Bunting, St. Catharines; seconded by Harold Jones, Maitland: That with regard to tender fruits we would call the attention of the Government to the fact that whereas, under present tariff conditions the industry has prospered, population has greatly increased in these districts, large areas of unproductive land has been brought under a high state of cultivation, many allied interests have been established and placed on a firm basis; an extensive transportation system has

been developed, which has had for its object the distribution of these products all over Canada,—we firmly believe that any change in these conditions would result in very great injury to an industry that if not disturbed will be of the greatest importance to Canada as a whole. We would therefore request that no change be made in the present customs tariff on tender fruits.

A committee composed of Messrs. W. H. Bunting and R. Thompson of St. Catharines; Jas. E. Johnson, Simcoe; D. Johnson, Forest; and Harold Jones, Maitland, was appointed to go to Ottawa and make known the views of the fruit growers on the tariff.

NIAGARA GROWERS APPROVE

At the annual meeting of the Niagara Peninsula Fruit Growers' Association held a few days later the matter was again discussed. Resolutions were passed practically approving the foregoing resolutions.

THE PRAIRIE VIEWS

From the prairie provinces a long memorial was sent to the government signed by all the wholesale fruit jobbers, at all points west of the Great Lakes as far as Calgary and by all the wholesale fruit jobbers of Winnipeg: They claim that the present tariff of thirty per cent. on both fruit and vegetables is simply a tax on the prairie consumers as climatic conditions are such that their part of Canada can never hope to produce sufficient fruit and tender vegetables for their own consumption. They also say that reciprocity would be a benefit to the producers of fruit and vegetables in British Columbia, Ontario and the Maritime provinces as it would afford them free access to the unlimited markets of the United States.

Fruit Matters Discussed

The directors of the Ontario Fruit Growers' Association met in Toronto in January and organized for the year.

The following officers were elected: President, D. Johnston, Forest; vice-president, J. W. Smith, Winona; secy.-treas., Percy W. Hodgetts, Toronto.

NATIONAL APPLE SHOW

The directors were in favor of holding a national apple show in Ontario, but felt that there was not time to make the necessary arrangements for the holding of such a show this year. The general opinion was that such a show should be held in the fall of 1912, and that in the meantime arrangements to that end should be made. The following resolution was passed: Moved by H. Jones, seconded by Adam Brown —In view of the fact that this Association thinks that it would add largely to the value of a prospective National Apple Show to be held in Toronto to have the county councils of the fruit growing sections of the province vote grants towards the expenses in connection therewith, and to negotiate with the city of Toronto to provide a suitable building for the same, be it resolved that in the fall of 1911 the Ontario Horticultural Exhibition make a special effort to induce the counties to make large representative exhibits in commercial packages of their fruit products which will tend to increase the interest of both growers and counties for a National Apple Show in the near future, and further, that we as an Association encourage the growers in making individual exhibits of packages and display in fruits by offering large prizes for five, ten, and one hundred box lots; also that the Association again duplicate any grant made by any county up to the sum of fifty dollars for special displays and pay necessary transportation charges on such exhibits.

FREIGHT CHARGES

The transportation committee was instructed to take up the unfair discrimination in freight charges from Winnipeg to points further west and north, and if necessary to take such action as might be needed to bring it before the Railway Commission.

FRUIT INSPECTION

Another important subject of discussion was the inspection of apples at point of shipment, when if they were not up to standard the inspector could go to the orchards and notify the shippers of the fact. This system has been tried to a limited extent in the Niagara District with satisfactory results. Mr. James E. Johnston was appointed to confer with the Dominion Government on this point.

Niagara Fruit Growers Convene

The annual meeting of the Niagara Peninsula Fruit Growers' Association was held at Grimsby, Ont., January 12th, and was followed later by a meeting of the directors in St. Catharines.

The recent decision of the Railway Commission to the effect that express companies must revise their schedule of rates was hailed with delight when explained by Past President Bunting, who produced the full text of the judgment, stating that it was a complete victory for the growers, as every item presented by them in the form of complaint had ben substantiated by the board. He had written to General Managers Stout of the Dominion Express Company and Bryce of the Canadian, suggesting that they meet the growers and shippers with a view to reaching an agree-

Don't Wait Till Spring. Buy Now.

We are already receiving large numbers of orders for spring delivery of our **Selected Northern Grown Nursery Stock.** Now is the time to send your order while the assortment is complete. Orders received now are filed in rotation as received and will be filled accordingly.

Our stock has been used to plant some of the finest grounds in Canada. It is chosen by those who demand the best. It is hardy and will give satisfaction in all localities.

Remember, you do not have to pay for the stock till it is delivered. Send today for our large illustrated catalogue and make your selections now.

Are you interested in improving the appearance of your home grounds? Our Landscape Architect Department is prepared to offer suggestions and to draw up plans free of charge. Write for our illustrated booklet **"More Beautiful Homes and How to Get Them."**

The Canadian Nursery Co., Limited

10 Phillips Place, MONTREAL, QUE.

Nurseries at Pointe Claire, Que.

A FEW RELIABLE SALESMEN WANTED

GOOD CROPS

ARE OBTAINED BY USING

THE BEST MANURE

AS SUPPLIED TO

NURSERIES, FRUIT GROWERS AND GARDENERS

SURE GROWTH COMPOST

makes poor land fertile, and keeps fertile land most productive. Supplied by

S. W. MARCHMENT

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Mention The Canadian Horticulturist when writing.

ment upon the new schedule before submitting it to the Commission. Both had agreed . Later it was reported at the St. Catharines meeting that Mr. Bryce had refused to meet the growers. In a letter to Mr. E. D. Smith he claimed that the Railway Commission's ruling that a new tariff must be prepared applied merely to business going to the Northwest.

The directors unanimously empowered the committee on freight rates to expend any necessary sum of money in its fight for better rates from the Canadian and Dominion Express Companies.

OFFICERS ELECTED

The following officers were elected: President, J. W. Smith, Winona; first vice-president, Robert Thompson, St. Catharines; second vice-president, W. B. Bridgeman, Winona; third vice-president, G. Brown, Fonthill; fourth vice-president, Frederick Hamilton, Louth; secretary-treasurer, Carl E. Fisher.

Mr. Robert Thompson referred to the recent frut growers' meeting in Rochester, where it was freely admitted that Canada and Ontario have the only desirable mode of packing. This was different to statements made at Rochester some years ago, when the Rochester men had found such fault that the Ontario growers had to defend the Fruit Marks Act, which was then in its infancy.

Mr. Thompson stated that at the convention it had been demonstrated that a mixture of arsenate and lead with lime and sulphur would render the spray considerably more effective. Hydrometers are being manufactured so that the proper strength of the spray can be gauged.

The financial statement showed receipts for the year of $580.14, and a balance of $273.59.

Standard Fruit Boxes

The British Columbia Fruit Growers at their meeting, held recently in Victoria, approved the following sizes for fruit boxes: Apple boxes, 20x11x10 inches; pear boxes, 18¼x11x8½ inches; plum boxes, four basket crate, 15¾x15¾x4¼ inches; peach boxes, 18¼x11¾x4½ inches; crab apple boxes same as pear boxes.

These recommendations will be forwarded to the Dominion Fruit Growers' Association which meets at Ottawa next December, with a request that they be approved and sent to the Dominion minister of agriculture with a suggestion that they be legalized. There is now no legalized standard size for fruit boxes in Canada except apple boxes for export.

The apple box endorsed is the same as that set forth in the Fruit Marks Act as required to be used when apples are packed "for export only."

Ontario Delegates to Washington

Rev. A. H. Scott, of Perth, writes THE CANADIAN HORTICULTURIST that he and secretary J. Lockie Wilson, of Toronto, who composed the delegation to the American Civic Association from the Ontario Horticultural Association together with Mr. Jas. Wilson, Park Commissioner of Toronto, were given a fine reception in Washington and held up the Canadian end of Civic improvements. Mr. Lockie Wilson gave an address on Ontario Horticultural Societies and met the requirements of the occasion well.

The convention lasted three days and passed in review some forty subjects. An amalgamation of the American Civic Association and the International Conference of the Society for judicial settlement of International disputes for an evening session was a feature of the Convention. Andrew Carnegie was particularly kind to the Canadian delegates.

The headquarters of the Civic Association and the International Arbitral delegates was the New Willard Hotel where the Canadian delegation had their home. The Canadians bore home with them a vice-presidency as a token of esteem from their United States cousins.

Weights of Vegetables

Deputations from the Ontario and Quebec Vegetable Growers Associations waited on Sir Richard Cartwright, Minister of Trade and Commerce, in Ottawa recently and asked that standard weights per bag for vegetables should be established as follows, thus doing away with the lack of uniformity now prevalent: Potatoes, 80 pounds; onions, 75; turnips, 70; artichokes, 75; beets, 70; carrots, 70; parsnips, 60.

Sir Richard replied that he was in sympathy with the changes asked and gave the delegaton to understand that at the next session of Parliament the requests they made would be adjusted as far as possible.

Ontario Boxed Apples

An evidence of the success that is attending the efforts of Ontario Fruit Growers to ship apples in boxes to Great Britain is furnished by a report received by Mr. W. W. Moore, Chief of the Market Division of the Department of Agriculture, Ottawa, on a shipment sent to Glasgow by Mr. R. C. Fowler, of Burlington, Ont. This report reads as follows:

"The box shipment by R. C. Fowler contained some very choice fruit, and ship-

PEDIGREED TREES

PRODUCE

"QUALITY FRUITS"

We still have a nice stock of **SPY** and **WEALTHY APPLES**, also Hyslop Crabs—the sorts demanded.

Our Line of **CHERRIES** is particularly fine this season. The trees are large, smooth and straight, well supplied with fibrous roots. They are all **PEDIGREED.**

In **PLUMS** we have a splendid lot of yearlings as well as two year olds. The yearlings are large enough for the most critical buyer and heavily rooted.

Our **ROSES** and **EVERGREENS** contain the best varieties. We have a thrifty lot of eighteen inch NORWAY SPRUCE at $10.00 per 100.

WRITE FOR OUR CATALOGUE.

AUBURN NURSERIES
QUEENSTON, ONT.

SMALL FRUITS

STRAWBERRIES.—I have the following new varieties, which are very promising: Gill, Goree, Golden Gate, Fendall, Evening Star, and Battenburg. $1.00 per hundred, $1.25 by mail. And also the following recent introductions, which are coming to the front as standards:

3 W'S.—A variety of the same season as Senator Dunlap, fully as large a berry, and a much larger plant; will probably excel it in many soils.

CHIPMAN.—Of the same season, or a little earlier, very large berry, healthy foliage, strong runner maker; will run the other two very close.

MEADE.—A reliable mid-season variety, very healthy foliage, large, round, firm berry, with a very fine full flavor.

NETTIE.—An old variety, but still the latest; should be grown with a late staminate. In soils and locations suitable to late berries, this variety should be profitable.

Also the old reliables—Senator Dunlap, William Belt, Parson's Beauty, Sample, Uncle Jim, Steven's Champion, and many others. 60 cents per hundred, $4.00 per thousand. $1.00 per hundred by mail.

RASPBERRIES.—Eaton and Herbert, new varieties. 60 cents dozen, $3.00 per hundred express. King, Marlboro', Loudon, Baumforth Seedlings, and Cumberland Blackcap. 50 cents a dozen, $2.00 per hundred.

SEND FOR CATALOGUE

C. P. NEWMAN
Box 51 - LACHINE LOCKS, QUE.

THE BEST
IN
Vegetable & Flower
SEEDS

In the "KEITH'S SELECTED STRAINS" will be found what we consider to be the best varieties of every prominent vegetable family. The varieties are not necessarily "novelties," but are what we consider after long years of experience the best varieties in each respective class that it is possible to produce. They are not only the finest type in themselves, but the seed is of the freshest and best obtainable.

Select from the Following List: 3 pkts. for 15c.; 12 for 50c. Postpaid.

Early Beet	Lettuce (Head)	Early Peas
Late Beet	Musk Melon	Pumpkins
Butter Beans	Water Melon	Radish
Early Cabbage	Citron	Summer Squash
Late Cabbage	Golden Globe Onion	Winter Squash
Cress	Pickling Onion	Early Tomato
Carrot	Parsley	Turnip
Celery	Parsnip	
Early Corn	Lettuce (Curled)	
Cucumber		

Oz. pkts. of any of the above, 15c each. Postpaid.

Select from the Following List of Flower Seeds, 3 pkts., 15c.; 12 for 50c. Postpaid.

Aster (Red, White, Blue or Mixed)		Pink
Alyssum	Larkspur	Poppy
Balsam	Morning Glory	Portulacca
Candytuft	Marigold	Salvia
Cosmos	Mignonette	Summer Cypres
Carnation	Nicotiana	Sweet Peas
Daisy	Pansy	Verbena
Hollyhock	Petunia	Zinnia

Oz. pkts. any of the following, 15c each. Postpaid.
Morning Glory, Scarlet Runner Beans.

Sweet Peas, Nasturtiums Tall, Nasturtiums Dwarf.

Oz. pkts. any of the following, 35c each.

Aster, Alyssum, Candytuft, Poppy, Mignonette

Lawn Grasses, 30c per lb. Postpaid.

SEND FOR CATALOGUE

Geo. Keith & Sons
SEED MERCHANTS SINCE 1866
124 King St., E., TORONTO, ONTARIO

ments of similar quality are what are wanted to place Ontario fruit on a level with British Columbia and Western States packs. The No. 1 Baldwins wrapped made $2.00 to $2.50, No. 1 Spy wrapped $2.60, unwrapped $2.35, No. 1 special wrapped $3.00, No. 1 plain wrapped $2.60."

Mr. Moore writes: "These are splendid prices. Too many of our Ontario apples which are exported in boxes are not first class, and should, therefore, only be packed in barrels. As a result of this mistaken policy the reputation of Ontario boxed apples in the Old Country is not very good."

SPLENDID REPORT

Private advices received by Mr. Fowler from Glasgow state that this sale of boxed apples has never been equalled.

Mr. Fowler is also in receipt of a letter from New York, in which, among other things, the writer says: "I have inspected 30,000 boxes of California and Washington apples, and I did not find a car of apples in the whole 41 that was graded and packed better than yours, many not so well. This is one of the reasons you can beat the Western States box people on prices."

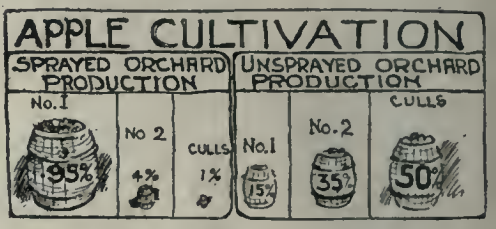
At the first Annual Exhibition of the newly formed American Gladiolus Society, the exhibit of the United States representative of Mr. H. H. Groff, of Simcoe, Ont., was the outstanding feature of the whole exhibition, not only being the largest exhibit, but winning the greatest number of prizes, including the most important one for equality and value in all shades of color.

Out of a total of twelve prizes seven were won by Mr. Groff's productions. Out of seven entries his representatives won five first prizes.

Ontario apples will soon be reaching the far western apple consuming markets, in attractive packages. Our possibilities as apple growers, with our cheap land and good soil and climatic conditions, are unequalled in the world.—Jas. E. Johnston, Simcoe, Ont.

What Spraying Will Do

The Fruit Division of the Ottawa Department of Agriculture has issued a bulletin which contains the following paragraph dealing with insects and fungous diseases: "A careful analysis of the reports with reference to insects and fungous diseases shows that if orchardists would spray carefully with the lime and sulphur mixture before the leaves appear, and with poisoned Bordeaux mixture three times afterwards, four sprayings in all, 90 per cent of the loss from insects and fungous diseases could be prevented. It would be a very moderate estimate to say that 50 per cent. would be added to the value of the crop if this course were adopted." Reports that are published in almost every issue of THE CANADIAN HORTICULTURIST prove this statement to be correct.



The above illustration shows the loss that now results from neglect of spraying and what would follow were spraying generally followed. It will be noted that in the sprayed orchards—apples being taken as a basis—95 per cent. of the fruit may be classed as No. 1. In the unsprayed orchards, when properly graded, only 15 per cent. would be classed as No. 1 and 50 per cent. would be culls. In practice, though, many culls are improperly graded as No. 2. Calculating No. 1 apples at $1.75 a barrel, No. 2 at $1 a barrel, and culls at 45 cents a barrel, the difference in the market value of the crop, assuming that the orchards compared produce an average of 100 barrels each, is about $87. In other words, the sprayed orchard would yield $170 and the unsprayed $83—more than 100 per cent. in favor of the sprayed fruit.

HURST SPRAYERS ON FREE TRIAL

NO-MONEY-IN-ADVANCE. PAY AFTER IT HAS PAID FOR ITSELF.

LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." *We pay freight. Wholesale dealers' prices.*

Man-Power Potato & Orchard Sprayer.
Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in *half*. High pressure from big wheel. Pushes *easy*. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. GUARANTEED FOR 5 FULL YEARS. Needn't-send-a-cent to get it "on trial." You can get one free if you are first in your locality. Write now.

Horse-Power Potato & Orchard Sprayer.
For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. Warranted for 5 years. *Try this machine at our expense with "your money in your pocket."* See free offer below. Write today.

Fitz-All Barrel Sprayer.
Fits *any* barrel or tank. High pressure, perfect agitation, easy to operate. *Brass* ball-valves, plunger, strainer, etc. Automatic strainer. *No "cup leathers or rubber"* about any of our sprayers. Furnished plain, mount on barrel, or on wheels as shown. 5 year *guarantee. It don't cost you "a cent" to try it in your orchard. Get one free. See below.* Write today.

FREE—Get a sprayer FREE.—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your Neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with $2.00 or send you check if you have paid cash.

For every Man-Power Potato & Orchard Sprayer we sell we will credit you with $3.50 or send check.

For every Horse-Power Potato & Orchard Sprayer we sell will credit you $3.50 or send check.

We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.

Ontario Seed Coy., Successors, 138 King St., Waterloo, Ont.

COUPON—Fill out and send today. *This Coupon will appear again.*

ONTARIO SEED CO., SUCCESSORS 138 King St. Waterloo, Ont

Send me your Catalog, Spraying Guide and "special offer" on the sprayer marked with an X below.

_____ Man-Power Potato & Orchard Sprayer.
_____ Horse-Power Potato & Orchard Sprayer.
_____ Fitz-All Barrel Sprayer.

NAME.....

ADDRESS.....

OUR PRICE LIST OF HOME GROWN SEEDS WILL BE SENT YOU ON REQUEST.

What the Horticultural Societies are Doing

During 1910 the Horticultural Societies of Ontario enjoyed a successful and prosperous year. Owing to lack of space it is impossible to publish as full a report of each society's work as we would like, but from the following short reports will be seen the wide scope of work the societies undertook, and in some instances the work already planned for the ensuing year:

STIRLING

The work of the Society was the beautifying of the Park received from the Corporation. During 1911 the Society anticipates building a wall about the lower corner and levelling the whole park. A prize was offered for the best kept lawn in the village. The secretary for the coming year is Mr. G. G. Thrasher.

SPRINGFIELD

In the spring seeds were distributed among the children and potatoes and seeds among the adults. At the Fall Exhibition prizes were offered for the results of these seeds. Prizes were given for the best kept lawn and garden among the members in the village, as well as other prizes for the country members. Mr. V. H. Chute was again elected secretary for the coming year.

BRANTFORD

Last year was the second during which the society held a lawn competition. Already this year many have signified their intention of entering their lawns for the 1911 competition. R. W. Brocks, secretary.

SMITHS FALLS SOCIETY

Mr. Wm. Keith, secretary, reports that in addition to the premiums to members, THE CANADIAN HORTICULTURIST being one, the Society provided seeds to the school children and prizes were awarded for the successful competitors. Lawns were judged and the results published. Other work undertaken by the Society was the beautifying of the grounds around public buildings, and the reclaiming of eleven acres of waste ground into a park. Through the courtesy of Prof. H. L. Hutt, of the O.A.C., the ground was laid out by a landscape artist, and the transformation was so great that the council and public appreciated the work and contributed generously.

LINDSAY

Plants, bulbs and literature were distributed. The society gave general information to a number of people by aiding them in their difficulties with plants and trees. The society also kept an eye on the town improvement in the shape of better care to shade trees, and preventing short cuts across corners of lawns where there were no fences. The motto of the society is to

DOUGLAS GARDENS

OAKVILLE, ONT.

February is the month for planning garden work. Fall—as well as spring planting, should now be carefully planned. For spring planting, seeds, bedding plants, the half hardy bulbs and some of the Herbaceous Perennials should now be secured. The hardy bulbs, such as Tulips and Daffodils, and most of the hardy Perennials should be planted in the fall.

Our China Aster ad. will appear here next month.

Our Gladiolus announcement will be made here in the April number.

Please send post card with name and address for our Spring—(issued 1st February) and Fall—(issued 1st August) Planting Lists

JOHN CAVERS

Trees For The Lawn

A large assortment of Weeping Mulberry, Ash, Willow and Elms, Evergreens, also all kinds of

Shrubs, Fruit and Ornamental

Trees, Hedge Plants, Roses, Vines, Etc. All stock in first-class shape. Order early for spring planting. Prices 10 cents up.

CHAS. BAKER, Nurseryman
London, Ontario

GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM

Our New Free Book Tells How. Send For It Today.

Your Big Money is in Growing Strawberries

No matter where you live or what kind of soil you have, Kellogg's Way will more than double your profits growing Big Red Strawberries right between your rows of young fruit trees, if you have no other place. You can do it easily. Let us tell you how—we've got it all explained in a nut shell—in our handsomely illustrated 64-page book entitled

"Great Crops of Strawberries and How to Grow Them"

It explains why the Kellogg Way of growing big crops of Strawberries is the sure and easy way. Tells how to prepare your soil; what varieties to set; how to care for the plants to get best results; how to market the fruit. Many fruit growers are now making a net profit of $500 to $800 per acre each year while waiting for young trees to come into bearing. Besides all this, the cultivating of the plants produces a healthy and more vigorous growth in the trees Just what the trees require. Whether you have ever thought of growing strawberries or not, it is just the book that should be read by

Every Fruit Grower and Farmer

What others are doing you can do right in your own soil. C. Harder, Twin Falls, Idaho, is making as high as $1000 per acre each season growing strawberries between the rows of his young trees. Why don't you? It will more than double your income.

Kellogg's Thoroughbred Plants

The only strain of plants that are propagated from mother plants of high fruiting power. That's why the Kellogg Strain of Thoroughbreds is so productive and bears such enormous crops of big red berries. They have a record of 15,000 quarts per acre. Large yields are often reported grown in young orchards. If you want to make some easy money, get our 1911 book. IT'S FREE.

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WRITE FOR CATALOGUE

Campbell Bros. Simcoe, Ont.

"Keep on Trying." Mr. F. J. Frampton is the secretary.

WALKERTON

The society held a free lecture by Prof. H. L. Hutt on beautifying lawns and grounds around residences and public buildings. A distribution of bulbs, plants and shrubs was made. In addition, the members had the privilege of ordering anything outside of the selections offered at wholesale prices ,and also received THE CANADIAN HORTICULTURIST at the expense of the Society. A free flower show was held. Prizes of window plants, annuals, and bulbs were offered. The latter were to be distributed in the fall for hanging baskets and window boxes. The flowers afterward were sold by auction, and the proceeds, plus $10.65 donated by the society, was given to the County Hospital for the purchase of the hanging baskets and window boxes. Mr. Jas. Fulton is secretary.

ELMIRA

Flower beds were started in different places by the society, and also by the council. Mr. Wm. Hunt, of the O.A.C., has consented to give a lecture on "In What Way We Can Improve Public Places Along Horticultural Lines," which will no doubt help to boom the society, put extra vim into the work, and increase the membership. C. Percy Ruppel, secretary.

OAKVILLE

Mr. R. F. Sanderson, secretary, reports that the society undertook the work of planting an oval shaped flower bed twenty-seven feet long and thirteen feet wide on the Town Hall grounds. In the centre were cannas, next salvias, then filled in with pink geraniums, with a border of silver-leafed geraniums. During 1911 the society intends to extend this kind of work as excellent results were received. The premiums included THE CANADIAN HORTICULTURIST and a distribution of plants. Flower seeds were also distributed among the school children.

KINGSTON

The work of the society is confined principally to holding an annual exhibition. Last year a high class concert was held each evening of the exhibition, which proved a great attraction. The exhibits were so arranged that the people could promenade and inspect the many exhibits of fruit, vegetables, flowers, etc., and at the same time enjoy the musical programme. The problem of encouraging the citizens to beautify their homes was taken up by the directors for the first time. The city was divided into two sections and prizes were offered in each section for the best kept lawn and most attractive front. This year every effort will be put forth to increase this branch of work and the competition will be thrown open to all citizens whether members or not, and in this way a friendly rivalry be created, which will extend all over the city.

BERLIN

The organization meeting of the Berlin Horticultural Society last month was attended by a large number of members and others interested in the work which will be undertaken by the society during the year. Those in attendance, on the invitation of the chairman, handed in their names and the necessary fee, and thus at the meeting had a voice in the organization proceedings. Those present were enthusiastic over the prospects of the society in Berlin, and the large number of ladies present was a significant feature, pointing to the fact that the society will have the assistance and hearty cooperation of the ladies of Berlin.

At a subsequent meeting of the Board

the following officers were elected: President S. J .Williams; vice-president, H. L. Janzen; and secretary-treasurer, Geo. Dekleinhans.

MILTON

One of the new societies of Ontario which is doing good work is the Milton Horticultural Society, which was organzed about a year and a half ago. The members were encouraged to improve their home surroundings and much was done in the way of civic improvement. A Toronto gentleman who was formerly a resident of Milton, recently donated three valuable sterling silver cups for competition among the members each year. This feature helped greatly in arousing the interest of the members and in encouraging them to put forth their best efforts to improve their homes and to make the society a success. The memberhip is increasing rapidly, and the officers anticipate a successful year.

BARRIE

The Barrie society last year ranked tenth among the societies of the provinces and second among the societies in towns. A feature which has done much to build up the society has been the interest taken by the business men of the town, many of whom contributed cash prizes for competition. The good work has consisted of civio improvement and improving public grounds. Encouragement has been given towards the construction of lawns and boulevards by the members. A grand challenge cup was donated to the society for competition each year among the members.

Spray Mixture

Bordeaux Mixture.—The old formula four-four-fifty is made by taking four pounds of copper sulphate or blue vitriol, four pounds of stone lime, water fifty gallons. Dissolve the copper sulphate by suspending in a cheese cloth bag in a pail of water. Use a wooden pail, as the copper sulphate has a corrosive effect on iron or tin. Pour the solution into a barrel or tank used for spraying, half filled with water.

Slake the lime by the addition of a small quantity of water. When slaked add several gallons of water and stir. Pour the milk of lime thus made into the dilute copper sulphate, straining through a brass wire strainer of about thirty inches to the

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mesh. Then add sufficient water to make fifty gallons and stir thoroughly, when the mixture is ready to use. This mixture should be made fresh and any left over for any time should be thrown out. Care should be taken never to pour the strong solutions together, but always dilute with a quantity of water before mixing.

This is the standard application for apple trees and for peach and such other trees as have foliage injured by the regular bordeaux. The above should be diluted with an equal quantity of water.

STOCK SOLUTION

A solution of copper sulphate containing one pound of sulphate to a gallon of water may be made and if no lime is added allowed to stand indefinitely in a covered vessel. From two to four gallons, according to the strength desired, is taken for each fifty gallons.

SELF BOILED LIME AND SULPHUR

Stone lime ten pounds, sulphur ten pounds, water fifty gallons. Put lime and sulphur together in barrel or tub and add enough water to slake the lime, stir thoroughly and add more water to prevent the mixture becoming sticky. As soon as the lime is well slaked dilute immediately with cold water, and strain through a twenty mesh sieve.

LIME SULPHUR

Stone lime fifteen to twenty pounds, sulphur fifteen pounds, water fifty gallons. Slake the lime in a small quantity of hot water, gradually adding and thoroughly stirring in the sulphur. Dilute mixture with twelve gallons of water and boil in an iron kettle or cook by steam in a covered tank or barrel for one hour. Fill the vessel with water to the required fifty gallons. Strain though a fine mesh strainer and apply hot.

KEROSENE EMULSION

Laundry soap chipped half pound, kerosene (coal oil) two gallons, water one gallon. Dissolve the soap in the full amount of water by boiling. Remove from the fire, and add the kerosene. Stir the mixture violently by driving it through a force pump back in to the vessel until it becomes a creamy mass that will not separate. For use dilute one part of the emulsion with ten of water.

CONCENTRATED LIME SULPHUR

In making fifty gallons take sixty pounds stone lime, one hundred and twenty-five pounds sulphur, fifty gallons of total product at finish. Put ten gallons of water in kettle and start the fire. After the slaking is well started add the dry sulphur and mix thoroughly, adding enough water to maintain a thin paste which requires about five gallons. After slaking and mixing bring to fifty gallons and boil, adding water from time to time to keep up the volume. The time of boiling should be until the sulphur granules are thoroughly dissolved. In general a period of forty to sixty minutes of actual boiling should be sufficient to put the sulphur into solution.

The finished product may be immediately poured or strained into a barrel or setting tank. The solution should be stored in air-tight barrels or kept from the air by means of a thin film of oil. This should be diluted, one part of the concentrated mixture to forty of water for summer spraying, and one part to nine or ten for spraying in the dormant stage.

INSECTICIDES

From two to three pounds of arsenate of lead should be added to each fifty gallons of lime-sulphur. When Bordeaux Mixture is used Paris Green should be added at the rate of from a quarter to half a pound to fifty gallons of the mixture.

At Last The Perfect Washer

Our "Champion" is easily the champion of all washing machines.

All cogs and machinery covered.

Lever and High Speed Balance Wheel operating together simply cut the work of washing to the lowest possible point.

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STOVE POLISH

"Black Knight" Stove Polish was made for women—made to save them work, worry and weariness.

"Black Knight" is the easy-to-shine Stove Polish. Just a few light rubs, with cloth or brush, brings a brilliantly black polish that lasts.

It's ready to use — no mixing—no soiling hands—no dirty work—and cheaper than any other because it goes farther and you get a bigger can for 10c.

Get "Black Knight" at your dealer's—or send 10c. for a large can free postpaid.

THE F. F. DALLEY CO. LIMITED, Hamilton, Ont. 19

Makers of the famous "2 in 1" Shoe Polish.

The Duty on Vegetables

M. T. Delworth, Weston, president of the Ontario Vegetable Growers' Association, informs us that contrary to published reports, that the representatives of the Ontario and Quebec Associations, who waited on the Dominion Government in Ottawa recently, were of one mind on all matters. Arrangements had been made to meet Sir Richard Cartwright regarding the standardization of weights of bags of a number of varieties of vegetables. The interview had been granted for that special purpose. The government not having been informed that the tariff question would be brought up, the Ontario men did not think it fair to ask the government to consider the matter on short notice.

A private conference was held by the Quebec and Ontario growers. The unanimous opinion was that the vegetable growers were satisfied with the present duty of from thirty to thirty-five per cent., but they wished it changed from an ad valorem duty to a specific duty. When vegetables are scarce and therefore high in price the Associations do not wish to force up the price by a high duty which is the effect of an ad valorem duty. When there are plenty of vegetables in the United States they do not want to have the Canadian markets glutted with cheap vegetables. The vegetable growers want the duty to be the same whether the price is high or low or the supply is scarce or plentiful. Mr. Delworth is satisfied that the changes asked for in the weights of vegetables as mentioned elsewhere in this issue will be granted.

The western jobbers and produce men have sent a memorial to the Dominion Government in which they express the view that instead of being an assistance to the Canadian producer the duty is nothing less than a tax on the consumer. When vegetables are imported they cannot be procured in Canada. When vegetables are plentiful the duty is no benefit as the home producer can grow them just as cheaply as United States growers with the additional advantage of having no heavy freight charges to pay.

Reciprocity in vegetables or even a low rate of duty would enable western people to procure at all times of the year a supply of vegetables at a reasonable cost while it would open the United States market to the Canadian producer,—a boon of almost inestimable value.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Okanagan Valley, B.C., and North Yakima, Wash., U.S.A., have been shipping quite large quantities of fruit via this port to England. For packing and large bright fruit this stock has aroused the admiration of the public. Ten cars of the Yakima apples have gone forward on one steamer from here; about 6,400 boxes, beautifully packed, each apple wrapped in soft paper. The boxes have handsome colored fruit labels on their ends, which make the packages very attractive. A number of cars were sold here, price generally $2.50 per case, which would be $7.50 per barrel. I bought a few specimens at 60 cents per dozen, and got the worth of my money admiring them. When we see this beautiful fruit going forward all fancy quality and compare it with Ontario No. 3's, I consider it is an advertisement for and against these provinces.

Our barrels that went forward last season were probably seventy per cent. eight-hoop, which is the barrel after all.

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No. 25 Planet Jr Combined Hill and Drill Seeder, Double-Wheel Hoe, Cultivator and Plow opens the furrow, sows seed in drills or hills, covers, rolls, marks out next row in one operation. Also has perfect cultivating attachments.
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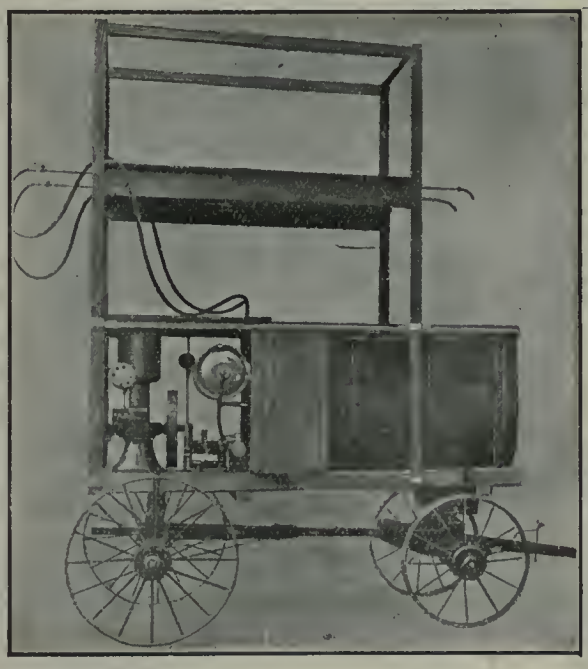

This Model C. Spramotor was awarded four Gold Medals, two at National Horticultural Congress, one at Dominion Exhibition, St. John, and one at Provincial Exhibition, Halifax, N.S., 1909-1910. "There are reasons."

Mr. J. C. Harris, of Ingersoll, who is using 4 Power Spramotors for eight years, writes about the latest Model C.

"I have used your Model C. Spramotor, 1910 Gasoline Power Sprayer almost every hour of fine weather during the past four weeks, with the exception of four days.

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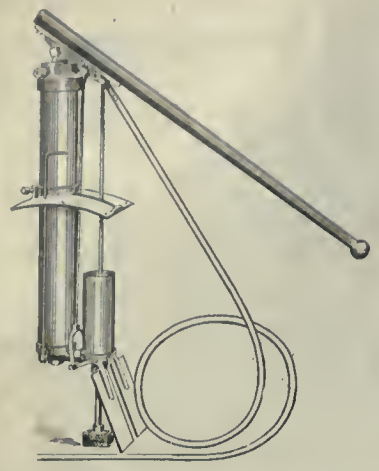

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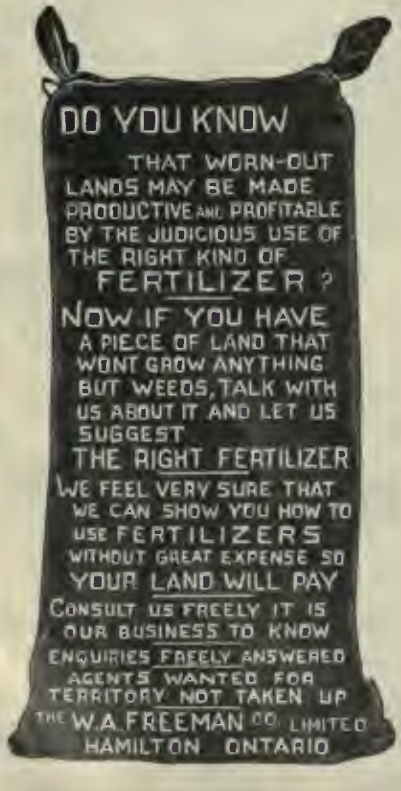
DO YOU KNOW
THAT WORN-OUT LANDS MAY BE MADE PRODUCTIVE AND PROFITABLE BY THE JUDICIOUS USE OF THE RIGHT KIND OF FERTILIZER ?
NOW IF YOU HAVE A PIECE OF LAND THAT WONT GROW ANYTHING BUT WEEDS, TALK WITH US ABOUT IT AND LET US SUGGEST
THE RIGHT FERTILIZER
WE FEEL VERY SURE THAT WE CAN SHOW YOU HOW TO USE FERTILIZERS WITHOUT GREAT EXPENSE SO YOUR LAND WILL PAY
CONSULT US FREELY IT IS OUR BUSINESS TO KNOW
ENQUIRIES FREELY ANSWERED
AGENTS WANTED FOR TERRITORY NOT TAKEN UP
THE W.A. FREEMAN CO. LIMITED
HAMILTON ONTARIO

Niagara District Notes

By "Weary Worm," Winona

This District is beginning to come into its own and is beginning to be known throughout the world for what it really is, as the finest fruit valley for producing the non-tropical fruits in North America.

The Campbell's Early grape did well last year, some exceedingly fine bunches, weighing a pound and over, having been produced. This variety does best on a good loam, and requires to be liberally fed. I had the pleasure of visiting the following fine fruit farms: Messrs. J. Burgess, Niagara; W. Armstrong and Fischer & Sons, Queenston; and W. H. Bunting, St. Catharines. All these gentlemen had very fine crops of peaches, running from 15,000 baskets up to 25,000, of excellent quality and beautiful color. In addition Mr. Bunting had a very heavy crop of apples and very free from worms.

In orchards that had been well cared for, apples were a medium crop of—upon the whole—excellent quality, but of very poor quality and quantity in unsprayed orchards. An encouraging feature is that more growers are giving their apple orchards good care than ever before, and that they are well pleased with the results.

Apples have proved themselves money-makers for most of those who took good up-to-date care of their orchards, even although the crop was not heavy. Under such circumstances apples are probably today—even in the Niagara District—as profitable a fruit as any.

Prices have ruled high for apples here. Spies having sold as high as $5 per barrel and other winter varieties for $3.50 to $4 f.o.b. One of the co-operatives sold their entire pack of "ones" and "twos" at $1.50 per box, and their "threes" at $2 per barrel.

In the neighborhood of Hamilton the apple crop was pretty good. Messrs. J. C. and M. C. Smith, Burlington, shipped a carload early in November to Carl Bros., Chicago, at $4.50 per barrel f.o.b. From Dundas, a town 5 miles west of Hamilton, a car of apples was shipped to Regina, and—more curious still—a car was shipped to Vancouver, B.C. Inspector Furminger, of St. Catharines, had detained two carloads of apples at Grimsby Station, and had them repacked, the grading not being good enough to suit him.

The farm near Vineland, called the Martin Farm, has been recently bought by Mr. J. W. Smith, of Winona, price $21,000.

By command of R. H. Lewis, Provincial Inspector of Yellows, Little Peach, etc., a number of trees in the District were taken out recenlty.

The annual meeting of the American Pomological Society will be held at Tampa, Florida, Feb. 9, 10, and 11th. The meeting of the Society for Horticultural Science, the official society of the horticulturists of the Colleges of Agriculture and experiment stations of the United States and Canada, will meet at the same place on Feb. 9th. Low railway rates have been given and an excellent program is offered. Those interested may secure a copy of the programme by writing to Prof. John Craig, Cornell University, Ithaca, N.Y.

The Central Farmers' Institute of British Columbia has passed a resolution asking that the duty on fruit entering Canada be raised so as to make it equal to the duties now levied on fruit entering the United States.

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This dainty Lady's Watch has warranted Swiss Works, is stem wind, and stem set, has solid silver nickel case, fancy dial and gold hands. The case is beautifully enamelled with roses, buds and leaves, in natural colors, and we will give it to you for selling only 36 packets of our beautiful cards. Take your choice and **write to-day. Address**

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Electro is guaranteed to contain 33% arsenic oxide, or 50% more than other brands, as proved by Connecticut and New Jersey Agricultural Experiment Station tests. Write us for them.

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NOTES FROM THE PROVINCES

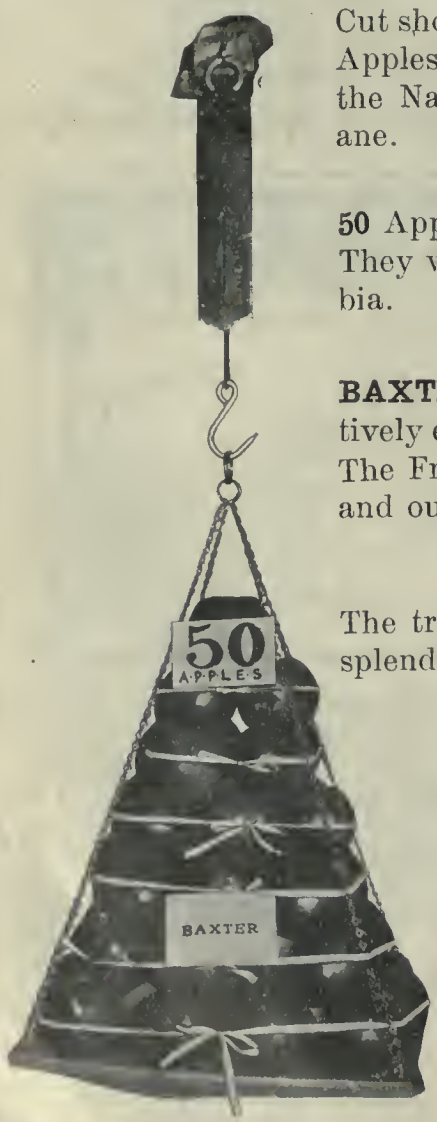
Prince Edward Island Fruit Growers' Meeting

J. A. Moore, Hazelwood, P. E. I.

The annual meeting of the Prince Edward Island Fruit Growers' Association was in every way a success. The attendance was better than usual, and although this has been a poor year for apple growing, a splendid display was on the tables. The packing in barrels and boxes was splendidly done. The fruit compared very favorably with that shown from Ontario and British Columbia. One thing though, is evident—we cannot grow Ben Davis with either of these provinces.

We are just now in an unsettled state of mind . The Spy, Baldwin, and King are tabooed. There is a feeling against Ben Davis, and our minds are not fully made up as to which varieties to put in their place. Stark, Baxter, Pewaukee, and Wagner each have their champions, but personally I believe there will soon be a better apple than any of these. I do not think we grow enough Yellow Belle Fleur here. The excellent lime-sulphur solution and its efficacy in preventing scab and the must-be-adopted system of thinning on the tree would make this variety a splendid winter apple for us. The fine flavor would create a market for it. Our apple par excellence, the one most suited for our province, is the Wealthy. I remember some years ago hearing one now high in authority, say when the Wealthy was being praised that "it would be all right if we wanted to produce vinegar." It was refreshing to hear him say this year that "we want nothing better than the Wealthy, and if I had planted them when I started I would be worth far more than I am now." This man's trees seven years out produced this year a barrel per tree, and were worth three dollars fifty cents per barrel, one hundred and thirty trees to an acre. Is not this pretty good? But it has been done. And while few can hope to have the success of this splendid fruit-grower, yet I think hundreds might try the venture, for be it known that as yet we do not begin to grow apples enough to attract buyers to our land. No surer way, no quicker way, and no more profitable way could be devised to double our population in the next fifteen years than for each of our farmers to plant and protect five acres of fruit trees.

BAXTER The King of Late Fall and Early Winter Apples



Cut shows the Pyramid of **BAXTER** Apples that advertised CANADA at the National Apple Show at Spokane.

50 Apples that weighed **64** pounds. They were grown in British Columbia.

BAXTER is a variety of comparatively early maturity. It bears well. The Fruit is handsomer than King, and outsells it.

The tree is much hardier, and is a splendid grower.

WE OFFER splendid grown trees for Spring Delivery.

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Agents Wanted

STONE & WELLINGTON
The Fonthill Nurseries
Toronto, - Ontario

British Columbia

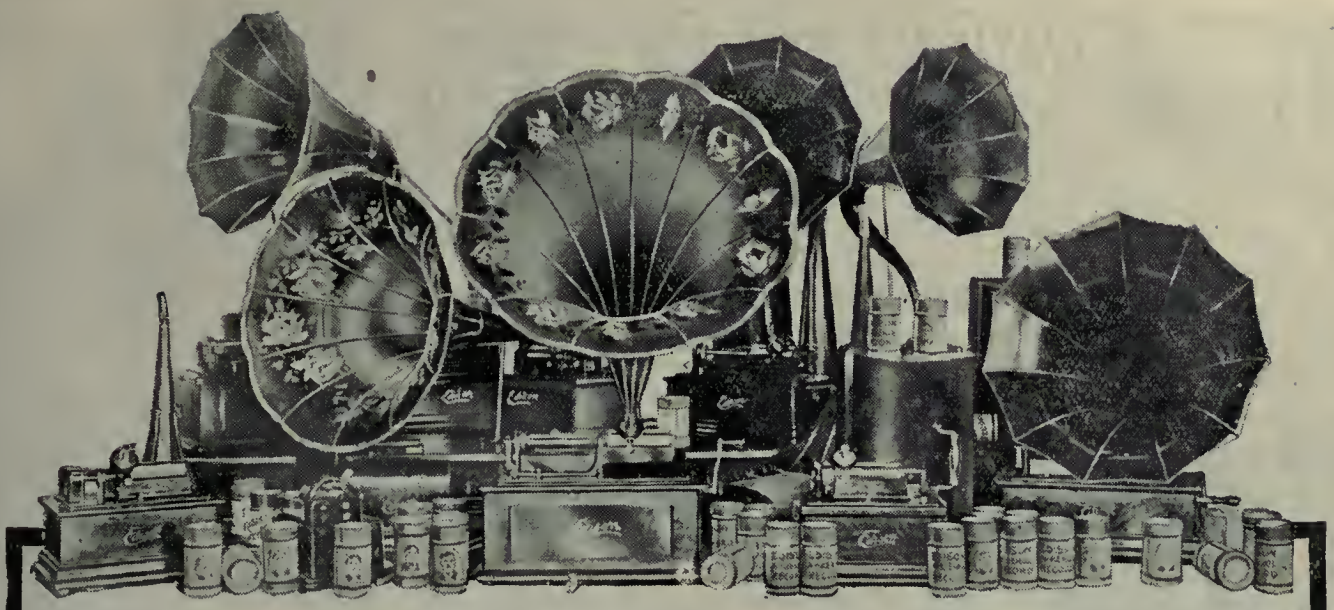
Mr. Thomas Cunningham, provincial fruit inspector, is distributing 5,000 circulars printed on calico, so that they will not wash off with the rain. These are to be posted in conspicuous places in all districts where fruit is grown so that the province should be fairly covered. The posters state that in order to prevent the spread of insect pests and diseases injurious to fruit trees and fruit, it is found to be imperatively necessary to prune and thoroughly spray all orchards.

If the owners or persons in possession of infected and diseased fruit trees neglect to apply the necessary measures for cleansing them the orchard will be quarantined or the trees must be destroyed at the expense of the owners as provided by the British Columbia Horticultural Act and amendments thereto. All burnings, debris and other rubbish must be burned up at the time of pruning.

The Dominion government has greatly enlarged its fumigation plant in Vancouver. The immense increase in the quantity of stock passing through the station each season made this enlargement necessary in order that the work of inspection and fumigation might be done expeditiously.

Preparations are advancing rapidly for the location of the demonstration orchards provided for by the appropriation of $10,000 included in the provincial estimates last session. It is intended that these orchards shall afford practical object lessons in the management of orchards. Two of the orchards will be located on Vancouver Island, four on the lower mainland, one probably in the Delta, one in Chilliwack, and two in the Dewdney ridge.

The second orchards district will comprise Shuswap, Armstrong, Nicola, Salmon Arm and Penneys (Wallachin), two orchards going to the constituency of Yale and two to that of Kamloops. Either three or four orchards are proposed for the third official district, which is to include Vernon, Kelowna, Summerland, Penticton and Keremeos. The fourth district is Kootenay and the Boundary county, East and N. E. Kootenay. It is expected that two orchards will be awarded to the Slocan district, one being given on Arrow and one on Slocan Lake, with one on the Kootenay Lake in the vicinity of Nelson, one at or near Cranbrook, one at Windermere, one at Rossland and another at Midway.



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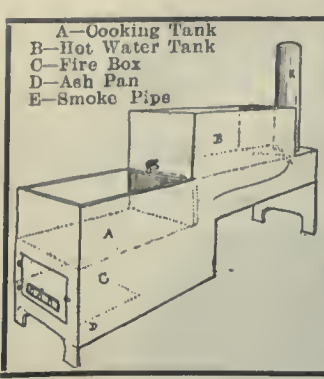

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Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Write us to-day.

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Got 98 Apples Out of Every 100 Free From Worm Cuts

In an orchard of 3,000 trees, the percentage of apples injured by codling moth was only ½ of 1%. The Rose Cliff Fruit Farm, of Wanesboro, Va., also reported that when the

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reached the apples in proper time, not a single worm escaped.

Orchardists and truck growers can depend absolutely upon Electro Arsenate of Lead to protect trees and plants against all insect pests.

Our Electro process makes the only successful **powdered** arsenate of lead because no other is in amorphous (non-crystalline) form.

It is the most economical arsenate of lead—no water to pay freight on—can be used as a dust or will dissolve instantly in water at any time—age cannot weaken it—rains cannot wash it off—has 50% more arsenic oxide than any other brand, yet it is harmless to most tender foliage as it contains less than ½ of 1% arsenic.

SEND FOR INTERESTING AND VALUABLE FOLDERS on Electro Arsenate of Lead and on Electro Lime-Sulphur (certain death to San Jose scale); also for report of tests from N.J. and Conn. Agri. Exper. Stations.

THE VREELAND CHEMICAL CO.,
46 Church St., New York

Northern British Columbia will constitute the fifth official division, to which two orchards will be given, one in the Kitsumkalum, and the other at Lakelse.

Nova Scotia

By A. Kelsall, Wilmot, N. S.

The popularity of the Farmers' Short Course, held annually at the Nova Scotia Agricultural College, grows with each succeeding year. As might be expected, however, the students of horticulture were less in number this year than in the few preceding years, owing to the comparative failure of horticultural crops during the past season.

Professor Shaw, the Nova Scotian horticulturist, was most ably assisted by Mr. A. McNeil, of Ottawa, and by Mr. Johnson, Mr. Messenger, and Mr. Bishop, prominent horticulturists of the Annapolis Valley.

PLANTING

Professor Shaw introduced a discussion on the planting of an orchard, the substance of which is as follows: Orchard land in Nova Scotia in a condition ready to plough costs from ten dollars to ninety dollars per acre, the average price being probably thirty dollars to forty dollars. Usually no returns are obtained until the orchard has been out from seven to nine years, though no regular substantial returns are made until the twelfth year from planting. If no barn manure is available and the orchardist relies entirely on commercial fertilizer to supply the necessary plant food, the total cost of growing an acre of orchard until it is six years old is two hundred and forty dollars. The apples obtained during the next six years that is until the orchard is twelve years old, will pay for the entire expenditure on the orchard until that time. An acre of orchard in prime condition is worth from five hundred dollars to one thousand dollars per acre. Surely the growing of an orchard in Nova Scotia is one of the best financial propositions of the present time.

Any land in Nova Scotia which is deep and well drained, and will grow ordinary farm crops, will grow apples. Many orchardists prefer a gravelly loam, and prefer the site to be higher than the surrounding land. Probably this is on account of the superior natural drainage of such soils. The desirable slope of an orchard site depends a great deal on the locality. A northern slope will retard the blossoming and consequently lessen the danger of injury through late spring frosts. A southern slope will produce earlier maturing apples of a better color; while an eastern slope is generally protected from the prevailing western winds.

The year 1910, in spite of the light apple crop, has had advantages as well as disadvantages in that many more people are becoming interested in spraying and the better care of their orchards. —R. R. Sloan, Proctor's Hill, Ont.

While probably 99 per cent. of the spraying done in Nova Scotia has been with Bordeaux; in the spring of 1911 probably 90 per cent. will be with lime sulphur.—S.C.P.

British Columbia Fruit Growers Association

At the annual meeting of the British Columbia Fruit-growers Association held in Victoria, January 6th and 7th, the chief

The Canadian Horticulturist

Vol. XXXIV MARCH, 1911 No. 3

The Planting and Care of a Large Orchard

W. H. Gibson, President Newcastle Co-operative Association

NEWCASTLE is situated in the heart of one of the greatest apple-producing sections of Canada. It is estimated that in the counties of Northumberland and Durham there are a million trees. Of these 400,000 are in bearing and 600,000 still to come into the production of fruit. Orchards of fifty and one hundred acres are common. The orchards on the farms all through the Lake Ontario apple belt will average at least ten acres in size.

I have no fear of over-production, as I have already seventy-five acres, and will plant twenty-five acres more in the spring. On my farm can be seen what it will be hard to find even in the bonanza apple ranges of British Columbia, or even the States, that is, apple trees in rows a mile long.

PREFERS HIGH HEADED TREES

Ninety-nine per cent. of the trees in this district are headed high. I see no tendency towards changing to the now popular form of low headed trees. Personally I am not in favor of the system of low heading, as I think it is not practical, and that many men who are planting low headed trees will in a few years regret their action. The hired man in plowing will bark them with the harness. The limbs will fly back and hit him in the face, knock off his hat, and cause him to swear, which will not aid harmony on the farm. The limbs will soon bend down with the weight of the fruit, so that they will lie on the ground, but my strongest objection is that in a country where the snow is deep and high drifts form, there is always danger of the snow drifting up over the limbs and breaking them down and destroying the tree. While I believe that a low headed tree might do in a district with a light snowfall, I consider it is a great mistake to plant them in the northern parts of Ontario. We must keep our trees above the snow drifts.

SOIL

A rich, clay loam or a sandy loam make good apple soil. I prefer clay loam myself with an open subsoil, but the apple will do on a variety of soils if it is well drained and given proper culture. There should be no permanent water nearer than eight or ten feet of the surface.

In laying out the field I have a good plowman open out a double furrow thirty-five feet apart across the field. A good man will run these furrows perfectly straight. Then, with a measuring pole, I measure the distance of twenty-six feet apart in the row, and put up stakes, and then take out the kinks by sighting along the stakes.

I prefer the trees planted in squares thirty-five by twenty-six feet. This gives a wide row for cultivation and I think that in northern districts, where the trees do not grow as large as farther south and west, that they will be far enough apart. In any case they will be far enough apart as long as I have anything to do with them, and then some one else can cut them out if they want to do so.

Flowers Won Prizes

I would not be without your most valuable paper, THE CANADIAN HORTICULTURIST, under any circumstances. At the last local fair my flowers took seven prizes and one honorable mention. I lay the credit to the useful information obtained from THE CANADIAN HORTICULTURIST.—Constance H. Royds, Rosedale, B.C.

The trees are planted a few inches deeper than they stood in the nursery. The holes are dug a little larger than the size of the roots and filled up with some good surface soil, care being taken to shake the tree, to work the soil around the roots and tramp the soil firmly as the hole is being filled. The filling is finished by turning the furrows back again, when the trees are mulched with a forkful of strawy manure to keep in the moisture. I like to get the trees headed at an average of three and one-half to four feet, though many are planted in this district headed at five feet as the farmers feel that they must keep above the snow line.

PRUNING

Very little pruning is done to the roots, except to cut off broken ones and straggling roots. In trimming the top I cut out lower limbs and thin out the branches, leaving three or four. These are cut back to about two-thirds their length. The main stock or leader is not touched as my chief care is to have a good strong leader, and it will start more quickly if it is not cut back. The upright pyramid form with a leader in the centre will make the strongest tree with no danger of splitting at the croten or other ills that open headed trees are likely to have. I have a ten acre orchard, seven years old, trained to this form which gives every indication of fulfilling the above predictions.

The varieties planted are Ben Davis, Stark, Baldwins, Spy, Russet and Greening. The number of trees of each variety planted and also on my own farm will run in rotation as named above. Also I believe that the profits obtained will be in the same rotation, the first named being the most profitable, and so down the list.

EARLY VARIETIES PROFITABLE

For the past two years I have been planting heavily of early varieties. Owing to the poor market facilities in the early days, very few early varieties were planted, and the few trees that were planted have been grafted to winter varieties. The best early varieties for this district are Duchess, Gravenstein, Alexander, Wealthy, Blenheim, McIntosh Red and Snow or Fameuse. The market is improving for early apples, and their growth lengthens the season greatly as we can begin picking the Duchess by August 23rd and continue picking a succession of varieties right through until the winter apples are finished.

SPRAYING

I spray three times. Once when the buds are swelling, with the strong solution of a commercial lime-sulphur; the next two sprayings are made, one just before the blossoms open, the other immediately after they have fallen. I have had good results from using the regular 4—4—40 Bordeaux, with one-third of a pound of Paris green added for the last two sprayings. Last year part of the orchard was sprayed with the dilute commercial lime-sulphur, one to thirty-three with three pounds of arsenate of lead to the barrel of the mixture. I am not as satisfied as many others are that lime-sulphur will entirely supplant the Bordeaux as a summer spray, but will give them both a fair test again the coming season.

Birdseye View of a Seventy-five Acre Orchard
This fruit farm is the property of Mr. W. H. Gibson, Newcastle, Ont. See preceding article for description.

The application for the codling moth should be thoroughly applied, using plenty of force to drive the spray well into the calyx of the blossoms. These three sprayings will control ninety-eight per cent. of the worms, as well as the apple scab. If any sign of fungus is seen or hot muggy weather comes on, I would give another application of either lime-sulphur or Bordeaux two weeks later.

Select and buy your seeds early.

Notes on Spraying for Results and Profit

W. H. Bunting, St. Catharines, Ont.

FOR many years I have been a believer in the necessity of spraying in our fruit orchards and vineyards. The process of spraying has, however, been a gradual evolution, and thus it has been only in recent years that even the more experienced advocates of spraying have been able to satisfy themselves as to methods and mixtures, and there is still a great deal to learn in order that best results may be secured.

My first efforts were directed towards controlling the black rot of the grape. This disease, which on sandy soils in Pennsylvania and Ohio had wrought great havoc, had gained a foothold in some vineyards in the Niagara district in the nineties, more particularly where the soil was of a light or sandy character. For several years, although the Bordeaux mixture was used, results were more or less unsatisfactory. This was largely because the efforts were not so much directed towards preventive measures as to effect a cure after the injury was manifest. This was very much like locking the barn door after the horse was stolen. About the year 1900 it became evident that earnest efforts must be made to control this disease in our vineyards, else it would be necessary to devote the ground to some other kind of a crop, as large quantities of grapes of such varieties as the Rogers, the Niagara, the Brighton, and even the more resistant Concord were being entirely destroyed and rendered unfit for sale. Various spraying outfits had been employed. These were more or less efficient, but all of them lacked in one or more essential details, causing loss of time and considerable annoyance owing to their liability to get out of order at a critical time. In consequence the work was imperfectly or hastily performed.

About this time also the San Jose Scale had made such inroads in many portions of the district that it had become a serious question as to whether fruit growing as a commercial activity was likely to survive. This pest attacked nearly all kinds of fruit trees and multiplied with tremendous rapidity. Our knowledge of suitable and effective remedies was very meagre.

Thanks to the experiments and researches of our experts and professors, both in Canada and across the line to the South—so many of whom have been successfully engaged in this work that mention of a few names might be invidious—we have obtained an effective spray mixture. This is a compound of lime and sulphur. It has proved itself so valuable that it bids fair, in combination with arsenate of lead, to be a specific for nearly all the ills that the fruit industry is heir to, and they are many and varied.

For the past few years we have been engaged in a campaign which has had for its object the control and reduction to a minimum of the pests to which I have referred, including also the cindling moth, apple scab, peach curl, and other fungus diseases. With this end in view we have established a steam plant for the economical preparation of our own home made lime and sulphur mixture. We have also secured a power spraying outfit of large capacity by one of the most reliable makers. We now feel that we are fairly masters of the situation.

The past season has fully demonstrated that a careful spraying in the dormant season with a strong solution of lime and sulphur will keep the San Jose Scale in such subjection, that if looked after each year it need cause no further anxiety. This same spraying has also been found a specific for peach curl, and will greatly assist the operator in his subsequent work of controlling fungus diseases.

For the apple orchard we followed this up with a spray of dilute lime and sulphur or Bordeaux, with an addition of ten pounds arsenate of lead to two hundred gallons of the mixture immediately the petals began to fall from the blossom. This was followed by a subsequent spray about July 1st. The result was a beautiful crop of apples of excellent color and quality, which were the admiration of all who saw them, and which commanded excellent prices wherever offered for sale.

In the vineyards we spray early. The first spray is given with the Bordeaux mixture, about 3-4-40, before the bloom opens. We give four sprayings at intervals of ten days or two weeks. The result last year was a crop of almost perfect grapes of all varieties.

Peaches up to the present have had the spraying only in the dormant season, but observations this year have brought us to the conclusion that to ward off the effects of damp and unfavorable weather conditions in the ripening season a thorough spraying with the dilute lime and sulphur when peaches are about half grown may prove time well spent.

I cannot too strongly urge that no pains be spared in an effort to spray thoroughly and well. A man may do all the other work in connection with an orchard in the way of pruning, cultivating and fertilizing, none of which should be neglected, and if he falls down with his spraying he will come far short of realizing the satisfaction and profit which comes from a complete rounding out of the work outlined.

Getting New Bearing Wood in Old Orchards

A. McNeil, Ottawa, Chief of the Fruit Division

IN renewing the wood of an old apple tree, it is usual to cut away the top more or less. The result is that numerous suckers sprout upon the large limbs and even upon the trunk. A few of the most favorably situated suckers are selected, and the rest are cut off, and these growing suckers soon develop the bearing wood.

A common mistake with the average orchardist is to allow these suckers to grow the second year unpruned; the result is that the main growth is made from the top of the suckers which probably have grown the first year four or five feet. At the end of the second year there has been a vigorous growth of say, three or four feet. Unfortunately, this growth is above three or four feet of naked wood. An example of this is seen in figure one. The suckers should have been cut back when they were one year old, leaving not more than five or six buds. This would have taken probably three-quarters of the length from the suckers.

If all the suckers had been pruned in this way, then the second year the same growth would have been made as was made without the pruning, but it would have been located low upon the framework of the tree. During the growing season it might have been necessary to have cut out some of the twigs not needed to form the framework of the new head, leaving three, or perhaps four, good branches growing in different directions.

THE SECOND PRUNING

At the end of the second year the pruning should not be quite so severe. Probably not more than half the growth should be cut back, and during the following season some attention should be given to the branches to give those that were growing in the right direction a chance to fill the whole space about the body of the tree.

At the end of the third year the head should be fairly well formed. In all probability a few fruit spurs will have formed upon the second year wood, and the wood growth not be so great as to require much cutting back. Usually no cutting back is required, simply a little thinning of superfluous branches. After the third year the pruning should not be different from that of the ordinary apple tree and fruit might be expected upon all the previous year's wood.

THE CARE OF GRAFTS

The same treatment should be given to grafts. Nine out of ten of the trees that are renewed by top-grafting, have been distorted in shape by not cutting back severely the strong growth usually made the first year. Of course, where two grafts grow in one limb, one should be cut out after the first year's growth.

Figure two shows an old orchard which is exceedingly picturesque, but sadly in need of bearing wood coming out from the large limbs within a few feet of the ground. There would be little difficulty in getting a new growth, even in an old orchard such as this is, if the tops were cut back, encouraging the suckers to develop.

The skilful orchardist is always on the lookout for good new wood towards the centre and lower part of his trees. Those who are familiar with grape pruning know that, in order to have a crop of grapes, a growth of ten or twelve feet must be cut off, leaving a spur of four or five inches, with only two or three buds. In this way the vine is kept within reasonable bounds and large crops of good fruit are produced.

Exactly the same principle should be applied to apple trees, with this difference: If the grape grower looks for fruit upon the wood which he leaves of last year's growth, the apple grower looks only for the formation of fruit spurs on one year old wood and blossoms and fruit the year after. The orchardist has thus to look three years ahead at least. But once formed the fruit spur continues to give blossoms and perhaps fruit for three, four or perhaps five years.

Fruit spurs, however, are exposed to many accidents, the pruner and picker break them; wind and sleet have their effects; and they deteriorate with age; so that in practice the older limbs are constantly being deprived of the fruit spurs which once grew upon them, and the bearing wood is being pushed out farther and farther from the trunk and from the centre of the tree. The apple grower noticing this, is constantly on the lookout to renew these fruit spurs by means of new wood growing near the trunk and towards the centre of the tree.

An Example of the Neglect to Prune Dehorned Trees.—Fig. 1.
The suckers should have been cut back severely when one year old. Neglect to do this results in a tall, straggly top.

Experience in Spraying

At the short course in fruit growing held at the Ontario Agricultural College at Guelph, Mr. Robert Thompson, of St. Catharines, and Mr. L. Caesar, of the Agricultural College, Guelph, gave their experience in spraying orchards last season.

The start in spraying, Mr. Thompson said, should be made at the trunk, and that it was better to waste some of the spray material than not to use enough. The majority of people put on too little material. If the lime-sulphur is self boiled or has sediment in it use a large nozzle; if commercial lime-sulphur or clear home-made is used, two smaller nozzles would give better results. Give the first spray early for fear that press of work or an early spring would prevent the application. He would commence spraying any time from February twentieth with the strong solution for San Jose and Oyster Shell scale and blister mite.

HOME BOILED OR COMMERCIAL

He would use the concentrated in all cases as there is economy in manufacture, fuel and labor. He advised those having orchards of under ten acres to buy commercial lime-sulphur and those over that quantity to make their own. At the

Rochester meeting, Prof. Van Slyke advised eighty pounds sulphur, forty pounds of lime, forty-two gallons water as being better than the formula which is generally used, of one hundred and twelve pounds sulphur, sixty pounds lime and forty-two gallons of water. Then dilute the above to six barrels for the dormant spray.

FOR SUMMER SPRAY

Use at a strength of one and a half gallons to a barrel, practicllly one to thirty of water. He had seen no burning in using fifty-three barrels on two and a half acre orchard, except in the case of one barrel which the men had forgotten to stir.

In the yard where one tree was not sprayed there were no Nos 1 or 2 apples. One Gravenstein tree had sixteen boxes on the sprayed side and none on the side not sprayed. Under one Snow apple tree on the side that was not sprayed the ground was covered with apples, while on the sprayed side the apples all hung on.

Mr. Thompson is greatly in favor of lime and sulphur, being satisfied that it will replace the Bordeaux as being more satisfactory, more economical and more uniform in quality.

HOME BOILED CHEAPER

The cost of the home-boiled solution is about as follows:

112 pounds sulphur	$1.68
60 pounds lime	25
Fuel	10
Labor, at $2.50 per day	50
	$2.53

This cost of two dollars and fifty cents for what will make six barrels, is forty-two cents a barrel.

The commercial brand will cost from eight dollars to eight dollars and fifty cents a barrel; taking off the value of the barrel at seventy-five cents, leaves it at seven dollars and twenty-five cents to seven dollars and seventy-five cents, say seven dollars and a half a barrel, which will make eight barrels, and costs ninety-four cents a barrel, or more than double the cost of the home-boiled material. It is not safe to use commercial lime-sulphur weaker than one to eight for San Jose scale. He advised using home-made concentrated lime-sulphur and putting plenty on. A few cents saved in material is nothing considering the risk taken in not using a sufficient quantity. The solution can be boiled in barrels by steam. He had boiled the solution in twenty minutes, but advised one hour. Many people think that the material is boiling when it is really not. A thermometer should be used in order to test the heat.

Poor results in spraying are frequently due to not having kept the material at the boiling point sufficiently long. Boil one hour after the water boils. If using steam have it at a high pressure. In order to spray his trees thoroughly he

An Old Orchard in Need of Bearing Wood Lower Down. Fig. No. 2

The tops should be cut back to encourage suckers to develop. Old orchards can be renewed in this way. See preceding page for description.

pruned severely, bringing trees fifty years old down to within ten to twelve feet of the ground; in a number of cases the limbs where cut were six inches in diameter.

OTHER VIEWS

Mr. L. Caesar, B.L.A, of the Department of Biology, Ontario Agricultural College, gave as his opinion that there was no doubt that dilute lime-sulphur, either commercial or home-boiled, or Bordeaux, will give equally good results as a summer wash. The weakness of Bordeaux is that for some unknown reason, especially in some seasons, it will rust the fruit. One advantage is that either Paris green or arsenite of lime can be used, while with lime-sulphur the only safe poison is arsenate of lead, which has been proven to increase the efficiency of the lime-sulphur fifty per cent. The lime-sulphur will give a better color to the fruit. Thorough spraying gives the best results.

The old formula of twenty pounds lime, fifteen pounds sulphur and forty gallons of water, boiling one hour, gave good results, but the concentrated is more economical and convenient, and will save fuel, labor, time and money.

BUY OR MAKE CONCENTRATED

A co-operative company can save money for its members by boiling for the society. An individual with not more than three hundred trees had better buy it, while if the man has a large number of trees he can make it much cheaper than he can buy the solution; but if he has only a few trees, or is commencing to spray, he had much better buy a commercial brand.

There are a number of different formulæ, all very similar. As every pound of good lime will unite with two pounds of sulphur, he preferred the following, which he uses himself: One hundred pounds sulphur; fifty pounds lime, and forty gallons water.

Bring the forty gallons of water nearly to boil, put in the lime, stirring it well,, then put in the sulphur, working it up with the hands, or working through a sieve. It is not necessary to mix it up in a paste, as is frequently advised. Boil about an hour, stirring with a hoe, when it will be found to have boiled down to about two-thirds of the original amount, and will read about 1.305 specific gravity, of .33 Baume, on the hydrometer. If the above is diluted to forty gallons it will be found to read about 1.275 on the hydrometer. If the mixture is boiled by steam there will be no reduction in volume, and it will read 1.275 specific gravity. To test, let it settle and cool.

To dilute it for San Jose scale requires a specific gravity of 1.035 for good results. To find the dilution, divide thirty-five into two hundred and seventy-five, which will give 7.8, which means that every gallon should be diluted to 7.8, or that 6 4-5 gallons should be added to each gallon of the mixture. The summer wash is most successfully used at a specific gravity of 1.009, when by the same process we find that it will need to be diluted to thirty and one-half gallons, or that twenty-nine and one-half gallons of water should be added to every gallon of the mixture. As a rule, the manufacturers of the commercial brands claim a specific gravity of 1.300, and advise a dilution of one to eleven and one to thirty-five, which is usually somewhat weak to give good results. The commercial mix-

ture will do the work equally as well as the home-boiled if it is used at the same strength. Lime-sulphur is cheaper than Bordeaux.

SPRAY CALENDAR

1. Before or as buds are bursting spray with lime-sulphur without poison at about one to nine or ten; hydrometer test of specific gravity, 1.030 to 1.035, for scale, blister, mite, canker, scab, and destroying the eggs or young larvæ of leaf-eating insects.

2. Just before the blossoms burst, lime-sulphur, one to thirty-two, hydrometer test 1.009 specific gravity, add two pounds arsenate of lead to each forty gallons of the mixture.

Bordeaux, four, four, forty, with four ounces of Paris green or two pounds of lead arsenate, may be used. This application is to kill all leaf-eating insects just hatching, as caterpillars, case bearers, canker worms, bud moths and cankers, and to ensure the setting of fruit by warding off the scab.

3. As soon as ninety per cent. of the blossoms have fallen, use same as number two, or slightly weaker. Lime-sulphur, specific gravity 1.008, or Bordeaux three, three, forty, but the amount of poison should be the same. This is the most important spray for codling moth, and also destroys leaf eating insects and prevents scab and canker.

Spray thoroughly, forcing the liquid into the calyx of the blossoms. The arsenate of lead doubles the efficiency of lime-sulphur as a fungicide.

A fourth application of number three is frequently necessary in about three weeks to check the codling moth and scab.

For curl leaf of the peach, spray with the strong lime-sulphur solution. For the peach rot, spray with the self boiled lime-sulphur and arsenate of lead at intervals of ten days or two weeks.

Buy a pump of adequate capacity. It should have sufficient power to go over the orchard in three or four days. There is only a week at most when the trees can be sprayed for codling moth, and bad weather or unavoidable delays will probably reduce this to three or four days. Use a Friend style of nozzle for dormant spray and force it into the calyx of the blossoms.

Be sure and have good hose, as there is much inferior hose on the market, and a power outfit will give a pressure of two hundred pounds. The higher the pressure, the more material used and the faster the trees will be sprayed. For twenty acres or over use a power plant. If the spraying is to be done at all, it must be done quickly.

It is a mistake to neglect an orchard when it is not producing a crop of fruit. An orchard neglected for a year virtually puts it back three years.

Starting an Orchard*

Fr. M. Leopold, O.C.R., La Trappe, Que.

The first thing to do about starting an orchard, is to plan for it. A slow start is much better than a poor start. The ideal spot for a proposed orchard is gently sloping land, somewhat higher than its surroundings. When a frost or a deluge comes it quickly runs off on to the lower lands. Proper frost drainage is just as important as good water drainage, even more so. Because water can be tiled away; frost cannot. Some growers prefer a north or some other slope; but, says "Biggle," height of land is of more importance than direction of slope.

SELECT PROPER SOIL

Carefully study the question of soil in its relation to the variety of fruit to be grown. Some kinds of fruit do best on light soil, some do best on heavy soils. The difference between a sandy or a clayey location may mean the difference between success and failure.

Apples will do well on almost any soil, provided that it be somewhat elevated and sufficiently well drained. Very high sand or swampy muck, would be least desirable; a loamy, clay soil most desirable.

Cherry trees do best in a light soil, well drained, but not too dry; sandy, loamy or gravelly soil will do.

The ideal pear soil is a rather heavy clay loam with a well drained subsoil. Heavy clay does well if the under-drainage is sufficient. Light or sandy soils are not so good for this fruit.

Plums do well almost anywhere, if the ground is not to wet. This fruit, however, will stand much more moisture than the cherry. A clay-loam, rather moist, but without stagnant sub-soil water, would be ideal for the European and native varieties. The Japanese plum does better on a light soil.

SETTING TREES

In the province of Quebec early spring is the best season to set an orchard. The farther north the safer it is to practise spring planting and after all that may be said about fall planting, the best rule that can be given to a planter who is not an expert, is to stick to spring planting.

Most planters make the mistake of setting their trees too closely together. It seems to them no better than an extravagant waste of ground to set little spindling trees so many feet apart, and it requires some imagination to think that the trees will ever completely occupy the ground. As the man stands off to survey his newly-set orcahrd, it actually seems as if there were nothing there, but if he could see that same orchard a few years hence, in his mind's eye, he would surely see the wisdom of giving each tree plenty of "elbow-room".

On the other hand, I do not believe that in Quebec, where our winters are severe and trees do not profit comparatively as fast as in Ontario, in planting trees too far away.

*Extract from an address delivered at the annual meeting of the Quebec Pomological Society held in St. Hyacinthe, Que.

Never cut a limb from a tree unless you know just why you do it.

A Horse Power Sprayer (Hurat) in Operation

Planting a Peach Orchard

H. St. Clare Fisher, Queenston, Ont.

THIS is a subject upon which there is a diversity of opinion, but in treating it I simply relate my own experience, which covers a period of about twenty years. During the past ten or twelve years I have been endeavoring to find out by practice the best way to plant a young peach tree, and I feel that I have had a fair measure of success. At the very beginning is where the majority of orchardists fail, for on the proper placing in the

Fig. 1—Three Year Old Peach Tree Unpruned

The property of Mr. H. St. Clare Fisher, Queenston, Ont.

soil of a young tree depends the future of that tree.

There are four essentials in the planting of a peach orchard:

1. Preparation of the soil.
2. Selection of the trees, being careful to select the proper varieties for your particular locality.
3. Placing the tree in the ground in the proper manner.
4. Fertilization and cultivation the first season.

SOIL

The best soil in which to plant a peach tree is a deep sandy loam with a gravelly subsoil and a rock bottom, probably four to five feet from the surface. I would suggest that the ground be plowed in small lands and well drained in the fall of the year. Do not attempt to plant a peach orchard in a field unless it can be well drained with surface drains or has a good system of under-draining. Work the land very thoroughly in the spring, levelling the field as well as you can. Stake the field, using a triangle; never plow furrows in which to set the trees. Set your stakes eighteen feet apart, north and south, and twenty feet apart east and west, which is close enough to set your trees. Have your holes dug with a long handled pointed shovel and large enough so as not to cramp the roots of the tree. Trim your tree to a whip, place it in the hole with the point of the bud towards the south-west, and have the tree leaning at quite an angle in that direction, or in the direction from which the prevailing wind comes. Be sure to put surface earth around the roots of the tree, and tramp it as hard as you can, gradually filling the hole until it is about two-thirds full. Having the earth well packed or tramped hard around the tree is very important. As soon as possible after your orchard is planted take a truck load of fine ground bone and sprinkle about a quart around each tree on the outside of the hole. Have men follow up with shovels mixing the bone with the soil, at the same time filling up the other third of the hole, being careful not to pack the earth on the surface around the tree. I use a grade of bone with an analysis of three per cent. ammonia and twenty-three per cent. phosphoric acid. Do not put green manure around a newly set peach tree, or in other words, do not mulch it.

CULTIVATION

As soon as an orchard is set and fertilized start cultivating around the trees with a one-horse cultivator or use a drag cultivator with shoes on so that it will not jump and touch the trees. Do not attempt to get closer than six inches to the tree for fear of striking it, as great care must be exercised at this time not to dislodge the trees. Use a hoe to stir the earth immediately around the trees. Never use a disk harrow in a peach orchard if you can avoid it and do not cultivate deeper than three inches. After your trees have nicely started or about the middle of August place carefully around each tree three or four forkfuls of well-rotted compost manure. By this

Fig. 2.—The same tree as represented in Fig. 1 properly pruned. There are eighteen hundred in the orchard just like this one.

time cultivation should cease, but it must be thorough up to this time, being careful after every rain to go over your orchard with the cultivator and hoe, and regularly, in any case, once every week.

In order to have your trees a uniform size the following suggestions, if carefully carried out, will insure success. Immediately after the trees are planted take a stick thirty inches long, place beside each tree, and cut tree off, leaving each one in the orchard just thirty inches high. During the season keep all shoots rubbed so that the trunk of each tree will be about fifteen inches high. This, in my opinion, is low enough for a low-headed peach tree.

Fertilizers for Fruit Growers

Prof. R. Harcourt, O.A.C., Guelph, Ont.

(*Continued from last issue*)

From a German source we take the following results of a long continued experiment of fertilizers on plums: The value of the fertilizers during the experimental period of thirteen consecutive crops was $193.50; increased yield of crop worth $1,709.05. Profit, $1,515.45. When potash was left out the profit was reduced to $140; without the phosphoric acid there was $108.57 profit, which was still further reduced to $69.03 when nitrogen was the constituent left out in the experiment. In this particular case it is evident that the lack of nitrogen influenced the results more than the lack of either potash or phosphoric acid.

Quoting again from German investigations on gooseberries, the following results are also very interesting: The total value of the fertilizers used through thirteen continuous years of cropping was worth $203.50; total value of the crop due to the fertilizers, $2,035. It is apparent that this would leave a profit of $1,831.50. When any one constituent was omitted the profit was very much reduced. With most of the varieties used in the experiment potash had the greatest influence, phosphoric acid next and the nitrogen least. Evidence goes to show that different varieties of the same kind of fruit make use of the various mineral constituents in different proportions.

Strawberries have been found to respond very readily to the application of commercial fertilizers. A study of the requirements of this crop is not so difficult as that of the other fruits in as much as the strawberry crop does not occupy the ground for so long a time, and therefore experiments do not have to be continued for such long periods. Experiments seem to show that the complete mixture of the fertilizers will give the largest yields, but that on ground in good condition the plot receiving no nitrogen gave nearly as good results as where this constituent was added, while if potash or phosphoric acid were omitted the yield seriously diminished.

EFFECTS OF NITROGEN

One point particularly demonstrated in all experiments with soft fruits is that an excessive amount of nitrogen seems to produce soft fruit which will not ship well and which decays early. This is particularly true in wet seasons and with the strawberry.

(*To be Continued*)

The Canna

Dr. J. Wycliffe Marshall

The canna is strictly a tropical plant. There are over one hundred species, all from the hottest climates, but as far as I know America has contributed but one. This one, Canna flaccida, is a native of the swamps of Florida.

All cannas are aquatic or semi-aquatic, growing in wild, wet, swampy places. It is well for those growing cannas to bear this in mind if they want good cannas, as they have never left off their original habits. They need heat, sun, moisture, and a place as rich as their old rich mud beds in their first homes. All cannas in their natural state are showy on account of their broad and long smooth leaves.

The flowers of all cannas originally did not amount to much with the exception of the flaccida, which is said to brighten up its dreary home with a profusion of light yellow flowers resembling tissue paper flowers and equally as frail. The bloom is of short duration and is soiled by the slightest touch. For these reasons it is not a desirable species to cultivate alone. It was not the flowers of any of the species, but the foliage that first attracted attention.

But note the change which cultivation and hybridization has worked with these tall, stalky plants, with spare spikes of dull red or yellow flowers to the beautiful brilliant constant succession of blooming cannas of to-day, before which all other flowers (not excepting the gladiolas or geraniums) have to step aside.

CROZY HYBRIDS

In the Crozy hybrids we have the finest strain of all the cannas. A Frenchman named Antoine Crozy hybridized them into existence about the year 1884. The Crozy kept improving until 1890, when the Crozy hybrids were known everywhere, and instead of one stalk with flowers that wilted by the sun or were injured by the rain, there were stalk after stalk of big, full, bright flowers that would

"Turn on her god when he sets,
The same look which she turned when he rose."

From June until the frost cuts them down in November, the Crozy hybrids are a flame of those bright, big flowers. At the end of the stalk the flowers will come and when those are through a second and often a third big cob will open. When these are through another stalk is up to take its place, and would do so the whole year round were it not for the frost. Where is there another bedding plant that has so many good qualities? Stately, beautiful foliage, a perpetual bloomer, untroubled by disease or insect pest, and easy to grow. Break a stalk off a little below the ground, stick it in the ground and give it water. It will live and flower. Nearly all the cannas advertised are the Crozy hybrids.

In 1896 Springer of Italy succeeded in crossing the Madam Crozy and Flaccida. The two were named respectively Austria and Italia. The former was canary yellow, with crimson spots, with no resemblance to the Crozy. The flowers were very large, resembling the Flaccida.. Italia was a curiously blotched yellow and red. Neither were very desirable for bedding.

I have seen some fine hybrids by American florists. One I have, Madam Haskins, I think was produced by a Buffalo florist. I have not yet run across a pure white, pink, or rose, but the scarlet, yellow, and crimson are all fine varieties.

A Bed of Cannas at Elmcroft, the residence of Senator F. T. Frost, Smiths Falls, Ontario

The Bed of Cannas shown in the illustration of Elmcroft is really very effective. It forms a turn in the roadway in size, twenty-seven by fifteen feet. The shape is a pointed oval or egg shape. The outside row is composed of Dwarf Gloriso, two and one half feet, the next Souvenir de Antoine Crozy, three feet, with the centre of Dark Leaf David Harum, Green foliage, President McKinley, Queen Charlotte, Dark Leaf Deep Red Mewoasal. The border is of Caladium and the Dusty Millar. The bed has been planted for several years with similar arrangement and been both a pride and a pleasure.

Timely Work for Flower Growers

Many of the winter bloomers have a tendency to become root or perhaps pot bound. The quantities of small rootlets pressing against the sides of the pot become baked and injured by the heat of the rooms or hot sun. They should have a covering of cardboard or paper or simply a thin board nailed to the outer edges of the plant shelves which will keep the sun from shining directly on the pots and scorching the roots.

You can gain a great deal of time by starting nearly all the common flowering plants now. If you have no greenhouse or hot bed, a seed box can be arranged in the window, or in the cellar. The plants can be removed to the garden as soon as danger from frost is over, and you will have flowers in the garden a month ahead of your neighbors.

Begonias, Gloxinias, and Achimenes are among the best house plants. They are easy to raise and can be grown successfully in the windows of any dwelling. The temperature should be about sixty degrees and the plants shaded from the bright sun. After the first of June they can be successfully handled out of doors in a sheltered and shady position.

Cannas should be started into life this month either in the greenhouse or in boxes indoors, otherwise there will be no flowers until late in the season.

Hyacinths and other bulbs that were potted in the fall can be brought into full light in a cool place either in the greenhouse or window garden.

For a shady corner in the garden the surest plant, and also one very effective, is the tuberous begonia. Get dormant plants during March, placing them in pots where it is warm enough to start them growing. The growth will be well started when spring opens and a month will be gained in obtaining flowers.

You may now sow seeds of the very earliest hardy annuals such as Alyssum, in boxes ready to be transplanted when spring comes.

A few tuberous begonias may be put in moss or sand to start them off before potting.

To propagate Dahlias by cuttings, it will be necesary to bring the dormant plants up to the light now. Plant in a few inches of sandy soil and they will soon furnish choice cuttings which will root in a few days.

Cut a few twigs of Japanese quince, lilac, dogwood, maple, elm, willow, alder and various fruits. Place them in water, in a sunny window; change the water every three or four days, when you will be rewarded by their bursting into bloom.

Some Gardens and Gardeners in the Old Land

Miss M. E. Blacklock, Toronto, Ont.

THE Royal Horticultural Society's July Show is held at Holland House, an historic old place, the grounds of which are even now being cut up into building lots, the land being too valuable to be allowed to lie unused any longer. Indeed, it is wonderful to think it has escaped this fate for so many years — a bit of beautifully wooded country right in the midst of London's rush and whirl Those attending the show are permitted, by paying a fee of a shilling or two, which is given to some charity, to go over the grounds.

This was a chance not to be missed, despite a drenching rain, as the gardens are quite celebrated. A large stretch of lawn, with flower beds here and there, occupied one side of the house, the end of which opened on a walled-in, formal garden, good, of its kind. The wall on one side formed a back to several glass-houses or conservatories, and by mounting a stairway in the one farthest from the house, one came out on the roof, which formed a wide promenade all along, overlooking the formal garden as well as the grounds in general. This promenade ended in a flight of wide steps down to the other side of the house, not far from the front door. The walks in the grounds were so arranged that they seemed endlessly long—and rather tedious, to be truthful—branch paths leading here and there to various points of interest, such as the rock garden, the rose garden, the Japanese garden, and others. The last was pitifully artificial and the whole effect very poor. In fact, taken as a whole, the grounds were badly laid out and nothing like as beautiful as they might easily have been, with such magnificent opportunities. The trees and shrubs were lovely, and of course no place could be ugly with them for a background, but the garden itself was a hopeless jumble of beautiful things, with no repose about it.

PROFESSIONAL GARDENS

Delightful visits were paid to Messrs. Barr & Sons' Nurseries at Surbiton, where one could wander around for hours at one's own sweet will amongst all their lovely things, getting valuable information all the time. To the Messrs. Perry at Enfield—Mr. Perry, Junior, with a wide knowledge apparently of the flora of the whole world, went around their grounds with me and showed me his best beloved treasures, specimens no money could buy, as well as the grand collection of herbaceous plants that they have for sale. Their collection of delphiniums is superb and won the gold medal at the Holland House Show. And to Backhouse & Sons at York, whose stock of Alpines of all kinds is wonderfully complete. Their place is beautifully laid out, and their herbaceous borders and rock gardens are extremely interesting.

MALVERN GARDENS

The gardens at Maddersfield Court, Earl Beauchamp's place near Malvern, are very quaint and the trees magnificent. A beautiful stream runs through a ravine in the grounds and full advantage has been taken of it to plant waterside things. A little island in it was devoted to primulas of all kinds, some of which were in bloom in August. The somewhat steep banks were clothed with many beautiful things. There was quite an imposing rock garden in which ferns grew in riotous profusion, but, though beautiful, it did not give you the idea that Nature had had a hand in the making of it.

A rose garden, enclosed with a hedge cut into divisions with arms to them like those of a bench, had a quaint effect, like so many stalls. A moat surrounded the mansion, the walls of which, on the house side, were covered with roses which were smothered in bloom. There was a maze and also a small enclosed garden, with a sundial at one end of it, which was very pretty.

A SCOTCH GARDEN

A charming garden up in Duns, Scotland, was as interesting as its owner, a doctor, who is as great an enthusiast as our president. His two special favorites were primulas, of which he has all the rarest varieties, and delphiniums. Of the latter, Mr. Quick, of "The Garden Magazine," spoke in most unstinted praise, saying they were the finest he ever saw, and he has ample opportunity for judging. They were so nearly over when I got there that it was unfair to compare them with others seen in the height of the delphinium season, but even they were very fine. The doctor was awarded a bronze medal at the great Edinburgh Flower Show in September for a stand of primulas he exhibited, at which he would doubtless be much elated.

The lovely Penstemon, "Newbury Gem," made a wonderfully vivid bit of color in this garden and the Shasta Daisy, "Edward the Seventh," which is not specially tall here, grew at least four feet high there. He had a little bit of his border devoted to the various varieties of heather, and a very interesting and beautiful group of plants they were. He is a clever gardener, for his borders were full of bloom, though it was September, and we all know how hard it is to plan for succession of bloom, when the season is nearly over.

The two Japanese gardens at the Japan-British Exhibition were perhaps the most satisfying of any, despite the fact that they contained very few flowers. Their very names suggested beauty and were not misleading, "The Garden of the Floating Island" and "The Garden of Peace." Anything more artistic and beautiful than these two gardens it would be difficult to conceive. You left the noise and glitter and jostling crowds of the great Exhibition behind you, and, the moment you entered their precincts, the spell of their loveliness fell upon you and you lost all sense of weariness and just allowed the peace and the quiet and the perfection of it all to sink gradually into your soul. Grass, rocks, a little bridge, a pagoda-like summerhouse, a shimmering pool, a stone lantern or two, some of the crimson-leaved dwarf Japanese maples and a few small trees, mostly evergreen and of

Cattleya Labiata

A variety of ornamental orchids, which are natives of tropical America.

tapering shape, these were the material used, but an artist combined them. Verily the Japanese are a wonderful little nation

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Insect Pests

Fir-tree oil soap is destructieve to the apples. Dissolve an ounce of it in warm water and syringe or wash the plant with it.

Red spider is readily routed by plain water. The pest cannot endure moisture. Its appearance is an indication of too dry air.

The blue aphis, which works at the roots of roses and other plants, and the mealy bug, a small downy creature, gray-white in color, thrives in a high temperature, and sorely troubles plants in an ordinary living room. For the former, pour liquid tobacco, strong and black, about the roots. For the mealy bugs, use fir-tree oil soap.

Mildew on leaves will yield if dusted with flowers of sulphur or sprayed with kerosene emulsion.

Azaleas will grow and flower for years if proper care is taken of the plants during the summer. The pots should be placed in partial shade and sprinkled every clear day with water.

The Cultivation of the Dahlia*

J. McPherson Ross, Toronto, Ont.

THIS handsome garden flower was first introduced from Central America over a century and a half ago, and was named in honor of Dahl, a Swedish naturalist.

Speaking locally, the dahlia was the most popular flower in Toronto forty years ago, a popularity it enjoyed in Scotland and England, and I have no doubt in Ireland. For myself I have kept the same love for the flower that was first implanted and absorbed into my system I am almost ashamed to tell you how many years ago, and also let me say that there were just as fine varieties, just as distinct and glowing colors, as large, perfect blooms in the show kinds and just as diminutive perfect flowers of the Pompom or dwarf types as any of to-day. The same extensive range of color prevailed then as now, from purest white to purplish black, the same fiery crimson and golden yellows, the same shades of lilac, lavender and rose, but no florist has as yet ever frightened the flower into blue.

The fact that we have a great range of color in this flower and that its culture is of the easiest character may account for its popularity, but it lacks one grace, though it possesses many a grace. It lacks one charm that many fine flowers also lack, and one in which the rose stands pre-eminent, that is perfume. If the dahlia possessed this quality the rose would have to look to its laurels.

The dahlia is eminently a fall flower for it is generally September that we have it in all its glory, and it is always a source of regret to see it destroyed just at its best, when the fall frosts come, and to which it is particularly sensitive and tender. To-day you may see a green column of thick strong stems and opulent leaves crowned with gorgeous prim flowers and to-morrow see a black, dishevelled limped mass shorn of all its glory. For this reason it is particularly necessary to forward its growth as early in summer as possible, but again we are met with limitations as we cannot plant out until the frosts are over unless we cover it over with an upturned pot or other protection.

PROPAGATING

The dahlia is one of the easiest to propagate from cuttings, and in order to have them the old tubers may be started in a box in the house anywhere near heat or sun, or in default of a greenhouse a hotbed is the next best. By starting them in March you will have plenty of shoots to make cuttings from. When two or more inches high cut them off just below the leaf bud or eyes at the base, cut leaves close to the stalk, leaving the top leaves, and these may be nipped back one half. Place them in moist sand, water and shade for a day or so, and they will soon root. If they have a little bottom heat they will root much sooner. Leave the cuttings in sand till well rooted when they may be potted in inch pots. Many put them in the pots at first in good soil. Make a hole with the finger or dibble, fill in a little clean sand then insert the cutting, water and shade. These cuttings form nice tubers in the pots and they may be left here till planting time. In fact many growers prefer the pot grown cuttings to bed tubers for bloom. After propagating all you wish you may divide the old tubers into as many plants as will have good eyes or that you may wish to preserve or plant. When making cuttings be particular to make the cut below two leaf buds in order that the tubers will have eyes or buds at base of stock for next year. If that is not done the tubers will be blank.

SOIL

Dahlias thrive in any soil, whether sandy, loamy or clay, if you will only dig plenty of manure into the soil and give plenty of water during hot weather. The dahlia is a lusty growing plant and requires a strong feed and plenty to drink. Dahlias do better in rows by themselves than mixed with other plants. They may be employed to advantage with shrubbery, which they serve to light up, as the shrubbery is usually without flowers when the dahlia is in bloom. The yellow and white sorts are best for this purpose.

In the border or row intended for the dahlia after being thoroughly enriched and dug up—good drainage, of course, is supposed to exist, if not, it must be provided—holes are dug eighteen inches to two feet deep four feet apart for tall varieties, and three feet for dwarf. Fill these holes with one foot of manure; tramp down well, then cover with three to four inches of soil on which place your potted plant or tuber. Cover above root top with two or three inches of soil, and press firmly. Place good stakes two inches square and four feet above the surface. This is necessary to prevent disturbance from wind, as the dahlia when fully grown makes a large plant, some five to six feet high, and presents a bulky surface to the wind, so that the staking is absolutely necessary.

When plants start pinch off all shoots but two and when an assured leader is growing, leave but one. I prefer to allow but one shoot, and this soon throws out side shoots which can be kept in order by pinching. Keep the soil loose by constant hoeing and stirring, but as soon as the top roots are thrown out by the plant cultivation may be stopped. A good plan is to have a shallow basin of soil around the base of plant to save the water, also to stimulate the plant when blooming by a pinch of well rotted, rich manure.

(To be Continued)

*A paper read before the Toronto Horticultural Society.

For gardening give me a spade that I can easily drive through the hard clod and tough sod and a trowel that will not break at the shank. Add to this a rake and a hoe, with a good reach and rigid handle, and I feel equipped for most of my garden work.—Dr. H. M. Speechly, Pilot Mound, Man.

A Corner in the Government Hill Greenhouse, Ottawa

Easter Lilies, Azaleas, and a grand collection of winter blooming plants suitable for conservatory decorations. Photograph furnished by Thos. Davis, Government Florist, Ottawa.

Climbing Roses

William Hunt, O.A.C., Guelph

AMONG the newer climbing or rambler roses recently introduced there are several that apear to be worthy of a place among the older and better known varieties, such as the Crimson Rambler, Queen of the Prairies, Baltimore Belle, and so forth. Indeed, it is questionable if some of these older varieties will not be altogether superseded by some of the newer kinds, although the Crimson Rambler will doubtless continue popular on account of the profusion of its glowing crimson flowers and its comparative hardiness. The tenderness of the Baltimore Belle, except in the southern parts of the province, detracts from the value of this otherwise beautiful rose that is so well adapted for a pillar or climbing rose.

Among about twenty varieties tested here during the past two years, there

Hardy Climbing Rose Queen Alexandra—Fig. 1

are only three or four varieties that have proved to be really hardy. The "Queen Alexandra," (Fig. 1) has proved to be one of the hardiest. It is a strong grower, and a very profuse bloomer. Its huge panicles of small pink, or pink and white single flowers, are very showy. The flowers are a little stiff in texture, not quite as dainty as the Dorothy Perkins. Its hardiness and profuse flowering habit will, however, ensure it a place among our best climbing roses. The Dorothy Perkins, while not quite as hardy as the rose in question, is one of the daintiest and prettiest climbers we have.

Another useful and hardy climber is the May Queen. It is very similar in habit and growth to the old Setina rose, known around Toronto some years ago as Mansfield's Seedling. It is, however, much more profuse in flowering than that variety; the foliage is of a very bright green, the leaves being large and dense. The flowers are large, double and of a bright rose pink color, and have a delicious rose perfume. The foliage is freer from the attacks of the small white fly or rose thrip than most varieties. The Philadelphia Rambler also proved fairly hardy without protection. The flowers of this variety are of a lighter and brighter shade of crimson than the Crimson Rambler.

Another good rose is the Wm. C. Egan (Fig. 2). It cannot be classed strictly as a climber or rambler rose, its habits of growth making it more suitable for a pillar rose, as the growth seldom exceeds five or six feet in height. The foliage is very pretty and attractive. The flowers are of a delicate flesh pink, almost white, double and quite large, often nearly four inches in diameter, with a rich rose perfume. The following varieties did not prove as hardy as those before named: American Pillar, Ards Rover, The Farquhar, Carmine Pillar, *Mme. Albert Carriere, Debutante, Glory of Waltham, *Prof. C. Sargeant, Hiawatha, *Madalina Scalarinus. The new rose Tausendschon has not yet been sufficiently tested to report on.

The roses named had no protection whatever during the three winters they have been tested, the growth being left upon the trellises. The varieties marked with an asterisk were killed out entirely. A test will be made of most of these varieties with winter protection, when doubtless many of them will give better results.

You can secure a choice climbing rose bush free in return for sending one new subscription to The Canadian Horticulturist. See the offer on the inside back cover of this issue.

The nasturtiums are the easiest annuals that can be grown. They are adapted to all kinds of situations and suitable for both foliage and flower effects. Both the seeds and young plants are sufficiently hardy so that planting can be made early in the spring, as soon as the soil can be properly prepared.

Hardy Pillar Rose Wm. C. Egan—Fig. 2

An Artistic and Easily Made Rockery

An Old Fashioned Rockery

A rockery such as is shown in the accompanying illustration is an addition to any garden, however modern and ornamental it may be. It is very easily made and is a source of pleasure the whole season. The child pictured in the foreground is Miss Betty Howell, the youngest member of the Galt, Ontario, Horticultural Society.

This rockery is composed of split blue granite boulders heaped up almost indiscriminately. There is a hollow in the centre which extends nearly to the ground. This space is filled with earth which is renewed with fresh soil every spring. In the centre of this earth, a round stick is driven which extends several feet above the pile. A broomstick will answer for this purpose very well. From the top of the stick stout cords are run to the outer edge of the earth surface, where they are pegged down with little iron rods with hooks on the upper ends.

In the centre around the small pole nasturtiums are planted. Around the outside where each string comes down morning glory seeds are sown and the plants trained up these cords. In the interstices between the pieces of rock are planted sempervium tectorum, popularly known as hen-and-chickens in old-fashioned gardens of fifty years ago. The whole has a very pleasing effect, for when in bloom the nasturtium blossoms peek out here and there amid the dense mass of morning glory vines and flowers.

If Cinerarias are troubled with thrips, dust with insect powder, or tobacco dust, or spray with oil, soap or tobacco spray. One pound of whaleoil soap to six or eight gallons of water will kill all that it comes in contact with, but as it is impossible to kill them all with one application, it will be necessary to spray several times before the thrips will be all destroyed.

Intensive Gardening on a Small Plot

H. F. Kennedy, Lyons, Ont.

QUITE often enquiries are made by amateurs and inexperienced gardeners as to how to manage a small garden. I am writing this article principally for this class of people, giving them the benefit of my own experience during the last six years. Many people with ambition and a love for gardening are placed in a condition similar to myself, that is, they have but a limited amount of land to exercise their gifts upon, and to such some information in regard to intensive gardening or intensive cultivation would be of great importance, for it is only by such a system that a good supply of all standard vegetables can be raised on a small garden plot.

By intensive gardening, I mean such a preparation and cultivation of soil and arrangement of plants and successive plantings as will ensure the maximum amount of vegetables. Last year on a very small plot of rich clay loam I grew an abundance of nearly every kind of vegetables and flowers, which were of an excellent quality, taking several first prizes at the county fair. I believe that by a better preparation of soil and cultivation it is possible to improve upon last year's results, providing the weather conditions are favorable. The soil is in better condition because of last year's cultivation.

TILLAGE

Garden soil should be plowed deeply or spaded up as deep as possible in the fall, as soon as the vegetables are all gathered in. Good rich stable or poultry manure to the depth of three or four inches, should be worked well into the soil. I find that plowing two furrows together, having the earth in high ridges over winter, is an excellent plan. This allows the water to drain off freely in the spring and gives the frost a better chance to pulverize the soil.

In the spring, as soon as the land is in a fit condition, I plow it or dig it again quite deeply and work it up as fine as possible. There are many ways this soil may still be improved for vegetable growing. Last fall I sent teams to the woods and hauled a quantity of black mould and sand loam. This I intend mixing with the garden soil. There are other materials, such as ashes, lime and soot, which will prove beneficial to the soil. If these are not available, some good fertilizer, such as potash, would do, or better still, bone meal, muriate of potash and nitrate of soda mixed into the soil at different stages of the vegetable growth, the two former before planting, and the latter at intervals while plants are growing.

The first point I want to emphasize is that you can scarcely get your ground in too good a condition for growing vegetables. The next thing of importance is what to plant and how to obtain your seeds and plants. I find it pays to patronize good reliable seedsmen. The best seeds are none too good. I have a hobby along that line. At present I patronize three seedsmen, one in Ontario, one in England, and one in the United States. The whole three send out good reliable seed. Our Ontario firm is as good as any. It also pays to raise your own plants. Any person who has a good sunny window in his house can grow a few plants, which, as a rule, give better results than greenhouse plants. At present I have in my windows three or four boxes containing about six hundred onion seeds, which I expect by the first of May will produce fine stalky plants for setting out in the garden. Later on, about the end of March, I will make a hotbed for sowing tomatoes, cabbage and other vegetables.

For growing plants in window boxes or hot beds, a good rich soil or compost is necessary. I use a mixture of good rich garden soil, well rotted manure broken up finely, and a small quantity of black bush soil and sand loam. A little lime, wood ashes and soot mixed with this completes a compost which I find to give excellent results in forcing along good healthy plants, with plenty of sunlight, moisture and a temperature of about fifty degrees. Have your compost in the cellar where you can easily get it when the right time comes in the spring for sowing the seed.

Prize Vegetables Grown at Dauphin, Manitoba

Mr. E. A. Sanderson, a progressive gardener was successful in obtaining sixty-one first prizes and twenty-one second prizes with vegetables grown in his garden at Dauphin, Man.

HEALTHY PLANTS

The second point to emphasize is that it is very important to have good healthy plants ready to set out as soon as the ground is fit and the weather conditions are favorable. It is not enough simply to have ground in good condition and leave it to the sun, showers and Providence to do the rest.

If you want good large vegetables of an excellent quality and early in the season, you must do more than prepare the ground and sow the seed. The hoe must be constantly in use, to keep the weeds down and the surface soil stirred up. As soon as the seed shows itself above the ground, or as soon as the plants are set out, cultivation should commence and should be continued until plants fill up the row. Occasionally it may be wise to water the plants or to add a little mulch or fertilizer around the plants. All this keeps the ground moist and forces the plants along, and makes them strong to withstand the ravages of the blight, beetle or fly.

(To be continued).

An occasional stirring of the surface soil in flower pots will give the plants new life and increase their growth.

Fourteen packets of flower and garden seeds in return for one new subscription to The Canadian Horticulturist. See our inside back cover.

What to Grow and How to Grow It*

A. G. Wolley Dod, Calgary

THE first work to be done in the spring is to make up a hotbed, although seeding plants of all kinds can be procured very cheaply from the florists. It is better to have your own frame, as it can be utilized not only for growing cauliflowers, cabbages, and bedding out plants, but also for raising a few early radishes and lettuces, and after the plants and flowers so grown are all planted out, a few cucumber seeds should be sown, which, with proper care, will give the grower all the cucumbers he will require until late in the fall.

The hotbed should be started about the 20th of March. Those who have a stable will probably have enough manure of their own, but it will well repay those who have not, to procure a few loads and make up a hotbed, which will take up very little room, and the frame can be made quite cheaply with a few boards and storm sashes. The size required is the next consideration. It costs very little more to make a frame of moderate size than a small one; and I find that one with three windows a very convenient size, as it gives plenty of room for the seedlings, and also when the time comes for the cucumber plants, as these require a good deal of room. A frame of this size will require from eight to ten loads of manure.

In choosing the manure for your bed, be careful to choose good, fresh horse dung, which has not too much litter mixed with it. If there is a small percentage of cow dung mixed with it, it will do no harm, but for choice, horse dung alone is preferable.

CHOOSING THE SITE

In choosing the site for the frame, if possible pick one so that you can have the slope of the glass either to the west or north, as then rays of the sun will not strike directly on the glass, and also leave room to turn your pile of manure over. Having now chosen your site, have your manure piled loosely in a conical heap, and leave it for a week or ten days.

If you find in hauling this manure that it is very dry, wet it is you pile it, about an ordinary sized water can of water to a load of manure will be quite enough; this can be applied to the top of the pile after each load has been put on. It is not often necessary to add any water, for, as a rule, there is sufficient snow mixed with the manure to make it moist enough. If, however, it is too dry, it will not only not heat properly, but will not retain the heat as long as it would if it were damp.

After about ten days this pile should be turned over, making a second pile besides the first. In making up this second pile, shake it up well and leave it loose. It is during the process of turning and shaking up that you will find whether water must be added. If it is too dry the inside of the pile will have a white appearance and will feel dry to the touch. If this is the case add water as before stated. This pile must remain another week or ten days, when it should have heated sufficiently to make up a bed. Measure the length and width of your frame and put some small pegs in the ground where your frame is to be built a foot bigger than the frame each way. For instance, if the frame is six feet by ten feet, your foundation must be eight feet by twelve feet.

Now turn your pile back to where it originally stood; but this time, instead of making a loose conical heap, make it the size required for the frame and stamp it down as firmly as possible, taking care to keep the sides as square as possible, or you will find that the top will be too small for the frame. In finally building this up, add a little more water if necessary, as before. Having made this bed up, you can now put the frame in position, but do not put your lights on yet, as it will have to be left some days yet for the heat to cool off—probably another week or ten days. After this lapse of time put about six inches of soil inside and tread it down firmly. If your manure has heated nicely and has not been left too long between the turnings, your frame will be ready for seeding about the 20th of April, which is about the right time for sowing, as then your seedlings will not be too big for transplanting when the time comes, which will be from the 24th of May to the 15th of June.

BUILDING THE FRAME

Those who are handy with a hammer and saw can make their own frames, but those who are unfortunate enough not to be able to make their own, will find any carpenter will make them one very cheaply. For the information of those who have never had a frame, let me state that care should be taken to have the frame deep enough, and deeper at the back than at the front, so as to let the water drain off the lights. Eighteen inches is not too high for the front end, as you should have six inches of soil and at least a foot between the soil and the glass.

The frame is best made so that it can screw together. It can then be taken to pieces in the fall and stored away until the following spring. Having prepared your frame, the next question is what to sow.

This will depend a good deal on the size of the garden, and whether the grower requires flowers as well as vegetables. I will assume, however, that he or she is going to grow both. It is always advisable to procure all your seeds from some reliable seed merchant early in the year, as if left too late one will have to buy from the nearest store; and this often leads to disappointment, as the sort required may not be obtainable, and one has either to wait till one can get what one wants, or else take some inferior variety. Every garden, no matter how small, should contain a few cauliflowers and cabbage, and a few tomatoes will always help to make a good salad. But as one must be guided by the size of the garden in what to grow, I will give details for a large family garden, and those who have a small one must be guided by circumstances; and if space will not permit their growing a large selection, they must be content with a few of the choicest kinds.

For cauliflower, I would choose Early Snowball and an extra early Eurfurt. A small packet of each of these varieties can be obtained for about twenty-five cents, which will be more than most people will require; but it is quite easy for one or two friends to club together and divide the seeds when they arrive.

For cabbage, Early Jersey, Wakefield and Flat Dutch are good, the former for summer use and the latter for winter use, as it is a good keeper.

A pinch of celery sown very thin will give enough plants for most growers. Paris Golden Yellow will be found a very excellent variety.

For radish, French Breakfast is about as good as any for sowing in a frame, and a pinch of lettuce will give an early salad, before anything in the open is fit for use.

METHOD OF SOWING

Having obtained your seed, the next question is the method of sowing. Do not have the soil in your frame too moist. It must be pulverized and packed tight. Put on your biggest boots and tramp the soil down thoroughly in the frame. Then get a short piece of stick or a piece of shingle and smooth it over again. Then with the end of the stick draw parallel lines down the length of the frame, about eight inches apart and half an inch deep, for the bigger seeds, but only just a scratch for fine seeds, such as celery. Then take a saucer and empty what seeds you are about to sow into it, and take a small pinch between your thumb and finger, and sow thinly in the rows according to the amount required; rake your soil lightly over the seeds with the stick you used to make your rows, and pat them down with the flat of the hand, and then give a good watering with the sprinkler and put on your lights, but open a little in the daytime according to the temperature. If your frame is at the right heat most of the seeds will germinate in a few days, but the celery will take from two to three weeks. As

(To be Continued)

*Extract from a paper read before the Calgary Horticultural Society.

Do not buy seeds because they happen to be cheap. Get the best.

Experiments with Cabbage and Tomatoes*

Prof. C. E. Myers, State College, Pa.

THE department of horticulture of the Pennsylvania State College and Experiment Station is making an exhaustive study of the two leading truck crops, cabbage and tomatoes. Several acres of ground are devoted to this work, which includes seed selection, methods of culture, fertilization, variety and strain tests. Of these the strain tests are considered the most important.

In the spring of 1908 seed of Jersey Wakefield and Danish Ballhead cabbage was secured from twenty-five seedsmen located at various places throughout the United States and Canada, and of twelve strains of tomatoes, including the varieties Earliana, Chalk's Jewel and Matchless. In 1909 a new lot of seed of eight varieties of cabbage, including the varieties Jersey Wakefield, Charleston Wakefield, Early Spring, Early Summer, Succession, Premium Flat Dutch, Surehead and Volga, and six varieties of tomatoes, including Earliana, Chalk's Jewel, Beauty, Globe, Matchless and Stone were secured from fourteen to twenty-nine different seedsmen, and are now being tested along with the seed secured the previous year.

Permit me to say that in general I believe seedsmen and seed growers to be a reliable class of business men. In most instances they have shown an appreciative interest in the work we are doing. I feel sure that in the majority of cases they are using their best efforts to supply their customers with goods that will be satisfactory. A few are indifferent, while for unknown reasons some of the seed secured from other seedsmen, who appear to exercise great care, does not produce satisfactory results. Why this is the case we are unable to definitely explain, but it is with the hope of solving the problem, in an endeavor to secure seed which will yield the most satisfactory returns, and the Pennsylvania Station is studying the problem.

The grower, who uses only one strain of seed for his plantings, may be unaware of the fact that there is a difference between strains. If he has been fortunate in securing a good strain, and growing conditions are satisfactory, he may secure a good crop. On the other hand, the crop may be a partial or a complete failure, and he may ascribe the cause to unfavorable soil or climatic conditions, insects, or disease, and overlook the fact that the trouble may be with the seed.

Ordinarily we are too ready to accept seed for what it apears to be, not for what it may be, forgetting the statement that Dr. Tracy has well made, that "the seed is the future plant packed for transportation." We do not realize that upon it fully ninety per cent. of our success in securing a satisfactory crop depends.

TESTING SEED

Sometime previous to the planting of the seed a germination test is made. This is important from the fact that it serves as a guide to the thickness of sowing. The test is comparatively simple and may be made in several ways. One way is to place the seed between pieces of blotting paper kept moist on a saucer nearly filled with moist sand, an inverted saucer serving as a cover to prevent evaporation. Or the test may be made under normal conditions in the seed bed. Either of these methods are satisfactory: In tests which we have made we have found the germination range from nothing to ninety-nine per cent. within the same variety purchased the same year. If the percentage does not fall below sixty or seventy-five per cent., the result is not so serious, so long as the facts are knows, but if it falls below this, and the fact is not known, disappointment may be the result.

In conducting the experimental work, every effort is made to have conditions as uniform as possible. The seed of the early cabbage and tomatoes is sown in flats in the greenhouse. Later the plants are transplanted and placed in the cold frames, where they are grown and hardened until they are ready for the field.

Soon after the seeds have germinated notable differences may be seen between the strains. In some instances the stand will be even and vigorous, while in other cases it will be uneven and weak. An interesting feature noted is that in several instances those strains which made the best appearance in the seed bed later proved to be the least desirable.

When the field planting was made of the Wakefield varieties one hundred of the best plants were taken of each strain and planted in rows which were a uniform distance apart, and at a uniform distance in the row. For the test of each of the other varieties fifty of the best plants of each strain were used . The plantings were made on fertile ground and were given good care throughout the season.

MARKED DIFFERENCES

The most interesting differences are not noticeable until the plants are nearly mature. As the season advances the plants of one strain will be notably uniform, while probably those of the adjoining row are decidedly irregular in type and time of maturing, and in some instances prove to be a variety other than what is expected, or possibly a mixture of several varieties. At this time the plants of each strain are carefully studied and the important points concerning each strain are noted and placed on record. In this way we secure definite knowledge of the relative earliness and yield of each strain.

(To be Continued)

* Extract from a paper read at the last annual convention of the Ontario Vegetable Growers' Association.

Part of the Delegation of Fruit and Vegetable Growers' at Ottawa February 10th, 1911

This deputation was sent by the tender fruit and vegetable growers of Ontario and Quebec to protest against the proposed tariff agreement with the United States.

The Canadian Horticulturist

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H. BRONSON COWAN, Managing Director

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CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
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July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
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Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO

EDITORIAL

BUYING TREES

The comparatively few unprincipled agents who make a practice of buying job lots of nursery trees and then peddling them out to the public under any name that they think will suit the fancy of the purchasers, have caused nursery men frequently to be looked upon as an unprincipled lot. Nursery men, as a rule, are as honest as any other class of business men, but owing to a great number of factors that enter into the case which are beyond their control, they cannot guarantee their stock true to name without being forced to charge prices that would be practically prohibitive.

It would be to the advantage of every fruit grower if he would order his stock early in the season. There would then be plenty of time for the nurseryman to sort the stock carefully, see that the trees are true to name and free from disease. Later in the season, when everything is in a rush, it is not likely that so much care will be taken in sorting the stock, and the varieties are more liable to become mixed.

Do not buy from any other than an authorized agent of a reliable nursery. It is wiser to buy direct, for even if an agent is honest he is likely to become confused in making delivery at some country hotel. There is also great danger that with a number of farmers pulling the bunches of trees over in search of their own that the different lots will become mixed, the labels torn off or the bundles broken. Under these circumstances there is a great temptation for the agent to save himself by counting out the right number of trees, even if he knows that they are not of the varieties ordered.

If the order is sent direct to the nursery, there is a separate bill made out giving the number and names of all the trees sent in each shipment. A nurseryman is only human, and it can be easily understood that when a separate bill is made up, which some time in the future may be shown to him by an irate customer who claims that his trees did not come true to name, that the nurseryman will be more particular in sending out good stock and true to name than he would be in making up a job lot to be divided up by some agent. Moral—Order early and only from well established and reliable nurserymen.

PLANT EARLY APPLES

The market for early apples is increasing steadily, and unless all signs fail it will continue to do so. Our old orchards of early apples have nearly all either been grafted to later varieties or have died from neglect. Our population is increasing rapidly, and until the last year or two no one had planted early apples.

In early days, owing to poor market facilities and lack of refrigerator cars, prices were so low that early fruit was a drug on the market. Conditions have changed since then and our most prosperous apple growers are planting largely of early varieties. What is the reason for this change? Of late years our cities have increased wonderfully in size, both from the influx from the country and by immigration, and at the same time the country population has decreased so that there a less number to grow the apples and more to consume them. A few years ago most city dwellers had relatives who would send them in a few early apples. In the mad rush for the city these home ties have been broken or else the whole connection has moved to the city, and in many cases the early apple trees have been cut down.

The people are using more apples of all varieties than they did in the past. The settling of the great northwest and the improved shipping facilities opens up an almost unlimited market from the prairie district and also from the northern parts of Ontario and Quebec.

Our improved methods of spraying will control the scab, which is usually worse on early fruit than winter varieties. We would advise a fruit grower to plant early apples only where there was a good local market or where there was a good, strong cooperative association or in a heavy producing district which would insure the necessary refrigerator cars and proper handling of the apples.

One of the chief advantages of the growing of early apples is that by planting a proper rotation a succession may be had from the early part of August through until the late winter varieties are ready to pick. By this means the picking season is extended from a rush of a few weeks to a period of from three to four months.

As soon as the work of spraying and cultivating is over and the cover crops sown, the help may be steadily employed in picking and marketing the apples. Under such conditions the work will be more cheaply and more thoroughly done than is possible when extra hands, many of them entirely inexperienced, must be employed to rush the work through before frost comes.

RENOVATE THE ORCHARDS

No one has as yet figured out the great loss to Canada through neglect of her orchards. We hear and read much about the conservation of our natural resources. Here is a natural resource which is one of the easiest to protect. Yet, but little has been done in this direction.

Old orchards that had not produced profitable crops for years were taken over last season in Ontario as demonstration orchards. In the one season, with proper care, they were made to yield from one hundred to three hundred dollars, net profit, per acre. This means a rate of interest of from ten to thirty per cent. on a valuation of a thousand dollars per acre. The gain to our fruit growers would be enormous if every acre of orchard would produce on an average only one hundred dollars per acre per year.

How can this be done? By spraying, pruning and cultivating, but the most important of these is spraying. The trees should be thoroughly pruned. If they are high cut the tops down even if the limbs are six inches across when sawn off. It will not injure the tree if care is taken to keep them painted. Where the varieties are unsuitable for market they should be top grafted by the ordinary method of cleft grafting.

The trees should be sprayed while dormant with a strong solution of lime-sulphur either home boiled or one of the commercial brands which give equally as good results and are much more convenient. Two later sprayings at least should be given, with either dilute lime-sulphur or the ordinary Bordeaux mixed with a poison.

The first thing to do is to buy a pump of a good, reliable make. Get one larger than you will need to go over your orchard

in three or four days, then if for any reason you are delayed put on more power, when the work will be done in less time. There are only a few days when the spray for the codling moth is effective. If the work is to be done on time you must have plenty of power. Have the working parts all brass. A few cents saved in buying a well made pump is poor economy. See that the hose is strong and that there are no worn or weak spots. Neglect to look after these simple details may cause delay through breakage that may result in the loss of practically the entire crop of apples.

THE OTTAWA DEPUTATION

The growers of vegetables and tender fruits in Ontario and Quebec, who to the number of twelve hundred waited on Sir Wilfred Laurier and his Cabinet, February tenth, to protest against the proposed reciprocal tariff agreement with the United Staes, have a very real grievance. While it has been proposed to remove the protection of the duty from the Canadian producer, this same agreement protects the United States grower by the duty, averaging about thirty per cent., which the Canadian producer will still have to pay for his supplies. The unkindest cut of all is that the United States grower can ship his boxes and baskets in free of duty when filled with vegetables or fruit, but the Canadian producer cannot import these same containers empty without paying a high duty. The protection on the finished product fruit and vegetables, has been removed, but it has been left on the raw materials such as coal, spray pumps, spray chemicals, wagons, implements, boxes and baskets. This will place our growers at a great disadvantage.

The injustice of this proposal is readily apparent. The government, when deciding to remove the protection on fruit, should have removed the duties on the materials which the fruit and vegetable men have to buy. The proposed arrangement will place our growers under a serious handicap. It should be amended immediately accordingly.

APPLE PROSPECTS IMPROVING

In order to learn if the yield of apple trees had decreased in North Eastern United States as it has in Ontario, and to find out what methods had been taken to counteract this decline, we addressed letters to the horticulturists at the different experimental stations, and the answers were pracically the same from all. They showed that owing to neglect, increase of insects, San Jose scale, and fungus diseases the orchard interests had been declining for fifteen or twenty years. In fact, many orchards had been dug out and the land used for other crops.

All the stations report that there has been a great awakening during the past three or four years, and that a large acreage is being planted to apple trees. More attention is being paid to the cultivating, spraying and pruning of the old orchards. The outlook for the future is bright as the men who are taking up the apple business at this time knew the difficulties in the way and how to overcome them.

This better care of old orchards and the planting of new ones will lead to a great increase of choice fruit on the markets, which at the present time are forced to depend upon the western states for their supply. Among the agencies mentioned as helpful in increasing an interest in the campaign for better fruit are apple shows, field demonstrations in planting, cultivation, pruning and spraying, extension school and class room work in the agricultural colleges.

Prof. Paddock, of Ohio, says that a large Apple Show is the best single means of arousing interest in orchards that has yet been evolved. Prof. Pickett, New Hampshire, puts his faith in demonstration work, as means of improving the apple business. Prof. Cumming believes in extension work and farmers' week meetings. Prof. Jarvis, Connecticut, reports that the New England fruit show has a great influence and marks the beginning of a new era in apple production.

PUBLISHER'S DESK

Persons desiring to secure a copy of the Index for Volume 33 of THE CANADIAN HORTICULTURIST may secure same on application to the publishers.

The April issue of THE CANADIAN HORTICULTURIST will be the Garden Annual and will contain articles by experts on the planning of gardens, their cultivation, the plants to grow and how to grow them, also photographs of vegetable and flower gardens.

We would appreciate it greatly if any of our readers who have photographs of their gardens or those illustrating any operation connected with their garden would send them to THE CANADIAN HORTICULTURIST, also if possible a short descriptive article explaining the same.

Arrangements have been made whereby readers of THE CANADIAN HORTICULTURIST may secure, without cost, a supply of seeds, plants and bulbs sufficient to plant out an entire garden. The various collections include new varieties of climbing roses (Lausendschon and Veilchenblau), fourteen packets of flower and vegetable seeds, dahlias, gladioli, begonias, cannas, caladiums and tiger lilies. These are being offered as premiums to those of our readers who secure new subscriptions for THE CANADIAN HORTICULTURIST from among their friends. There are many people who are sure to be interested in THE CANADIAN HORTICULTURIST if they were to see a copy. We do not know their names though, and so cannot send them a copy. Will you show them your copy and offer to forward us their subscription. They will be pleased to get the paper, and you will receive your choice of a number of fine premiums. Why not secure several of these premiums for your 1911 garden? You will be pleased with them. Fuller particulars are given on the inside back cover of this issue.

Farmers Willing to Help

In an interview with THE CANADIAN HORTICULTURIST, Mr. E. C. Drury, B.S.A., Crown Hill, Ontario, Secretary of the National Council of Agriculture, said that he felt that the fruit and vegetable growers have been placed at somewhat of a disadvantage with the growers of the United States by the proposed Reciprocity Agreement, as the entire program of the farmers composing the National Council of Agriculture had not been carried out. The demands in their program included free spray materials, free fertilizers, free implements, etc.

He stated that the National Council of Agriculture would join with the fruit and vegetable growers to impress the injustice of this matter upon the Dominion Government. They were willing to urge the Government to an agreement that would place these supplies on the free list.

Fruit Growing at the O.A.C

The short course in fruit growing held at the Ontario Agricultural College, Guelph, from January 24 to February 3, was an unqualified success. The class rooms were so crowded that seats were at a premium, as all available space was occupied by enthusiastic fruit growers who were interested in obtaining the greatest posible amount of knowledge in the shortest possible time.

The various problems of the fruit growers were dealt with by the professors of the college and also such well known authorities as Robert Thompson, sec. of the St. Catharines Cold Storage Co., D. Johnson Forest, President of the Ontario Fruit Growers' Association; P. W. Hodgerts, Director of the Ontaric Fruit Branch; and C. C. James, Deputy Minister of Agriculture.

There was also a special class in box packing under the charge of Mr. A. B. Campbell, an expert box packer from the State of Oregon.

The Fruit and Vegetable Growers at Ottawa

The tender fruit and vegetable growers journeyed to Ottawa, Feb. 10, in three special trains to protest against the proposed tariff agreement with the United States. A preliminary meeting was held in the Russel Opera House, at which the memorial to the Government was read and passed unanimously, after which the deputation marched over to the Parliament Building and presented their claims for consideration to Sir Wilfrid Laurier and the members of Parliament.

Mr. D. Johnson, of Forest, president of the Ontario Fruit Growers' Association, read the memorial, which described the great prosperity of districts represented, and the rapid extension of the orchard, vineyard, and vegetable growing business under the present tariff conditions, and stated in part: Whereas the Government proposes to admit American tender fruits and vegetables free of duty, of the varieties grown in Canada.

And whereas, we believe that such action will most seriously upset present conditions and compel Canadian growers to seek other markets, to their great detriment and financial loss.

NO COMBINES

And whereas, there never has been, nor from the conditions surrounding the industry, are likely to be any combines of the scattered interests of these fruit growers to advance prices, situated as they are over a wide extent of territory, and numbering many tens of thousands of people.

And whereas, many millions of dollars have been invested in this industry, in the firm belief that the present or equally satisfactory duties would continue to be charged upon imported fruits and vegetables.

ASK RECONSIDERATION

We would, therefore, most earnestly and respectfully request that your Government may after due consideration of the points we have ventured to bring to your notice, and after full inquiry into all the condi-

tions, reconsider the clauses referring to the interchange of fresh fruits and vegetables and that you may then be enabled to place our industry on a footing commensurate with its great importance to the development of this country.

Mr. W. H. Bunting, of St. Catharines, one of the largest fruit growers of the Niagara district, followed Mr. Johnson in an address, in which he showed the importance of the tender fruit and vegetable interests in Ontario, by relating that there were two hundred thousand acres of land devoted to this purpose, at least fifty thousand persons were engaged in the business, and forty millions of capital were invested in the business. Under the proposed tariff agreement, he believed that this great industry would be paralyzed without greatly benefiting the Canadian consumer, for instead of enjoying a regular and rapidly increasing supply of Canadian fruits and vegetables produced in his own country, he will be to a great extent dependent on the over production of Southern centres, which cannot be counted upon for a regular supply.

Mr. Thos. Delworth, Weston, secretary of the Ontario Vegetable Growers' Association, showed what a serious handicap would be placed upon the early vegetable growers, for while they had been placed upon an equality with the United States as regards tariff on vegetables they would still have to pay a heavy duty on coal, glass, greenhouse construction material, boilers, and supplies. Mr. J. McEvoy, of Montreal, upheld the claims of the Quebec Vegetable Growers, while other speakers were A. W. Peart, Burlington, E. D. Smith, Winona, and Thos. Rowley, Leamington.

Sir Wilfred Laurier, in his reply, gave the fruit growers very little encouragement of a favorable decision.

He told them that they were too late in coming, and reminded them of the difficulties of legislating for a country of such diverse interests. He quoted the words of a number who were with the other delegations and who wished reciprocity in fruits. Even if the United States fruit was earlier, he believed that serious competition was impossible, from the superiority of the Canadian product when it did come. My last word to you, he said, is that it is impossible that any tariff can in the face of conflicting demands be made acceptable to all, but all must be prepared to make some concesions for the common good.

Prices of Fruit and Fruit Land in Niagara Co., N.Y.

H. St. Clare Fisher, Queenston, Ont.

The fruit growers of western New York are progressive—and by-the-way, are exceedingly hospitable, and do things on a large scale . They state that the markets over there are always well supplied, and hail with delight the proposed trade agreement with Canada, as it just gives them that much larger market for their product. Our markets have in the past been a dumping ground for their fruits such as peaches, pears, plums, etc., much to the detriment of the Canadian fruit grower.

They do things on a much larger scale than we do simply because the area of fruit land is very much greater. Their farms are from fifty acres to five hundred acres in extent, while the farms here are from ten acres to one hundred acres. First class peach land can be bought over there at seventy-five to one hundred and twenty-five dollars per acre not planted. One farm I saw of ninety-five acres, on which there are sixty-five acres in peaches, over nine thousand trees, and the owner values this farm at only two hundred dollars per acre. The same farm placed in the Grimsby or Niagara districts would have sold for at least one thousand dollars per acre, and would be worth the price, too. The owner of the above mentioned farm sold his entire peach crop in 1910 for two cents per lb. or about thirty cents per eleven quart basket while peaches here sold for three cents per lb., and are worth that price.

Being a grower to some extent I know what it costs to produce peaches in this country. The fruit grower in this country cannot afford to sacrifice that one cent a pound on peaches, which he will be forced to do if the present duty is eliminated. Plums sold over there in 1910 at an average of one cent a lb., over here at two cents a pound. Bartlett pears at two cents, over here at two and a half to three cents a lb.; cherries three and a half to four cents, over here at five to six cents a lb., and so on. One prominent grower voluntarily stated that the early vegetables from the south always glut their markets. If the present duty on vegetables is eliminated the same state of affairs must obtain here. The producer in this country must live as well as the consumer, and when both are prosperous why disturb them?

Just a word about apples. One prominent commission man in the city of Toronto bought about twelve hundred barrels of apples from one grower in Niagara County, Western N.Y., at $2.50 per bbl. Why didn't he buy them in Ontario? He bought them where he could buy them the cheapest. Our Northwest market will be

APPLE TREES

Hardy, Northern Grown Stock

We have still a good stock of apple trees—well rooted, clean, hardy, true to name — just the kind you want to plant in your orchard this spring. All the leading varieties. An especially good stock of **DUCHESS** and **WEALTHY.**

Our **NORTHERN GROWN** Nursery Stock gives best results under a wide range of climatic conditions. It is very hardy, being grown on our own nurseries, near Montreal. It will prove succesful in your locality. Let us know the varieties you intend planting. Write us to-day before the stock is depleted. Our catalogue mailed free for the asking.

ORNAMENTAL STOCK

We have a very complete stock of Ornamental Trees, Evergreens, Flowering Shrubs, Hedge Plants, Roses and Vines. Also a choice assortment of Pæonies, Irises, Phlox and other Hardy Perennials. Our illustrated catalogue tells all about our ornamental stock. Write for it Now. A post card will bring it.

Are you interested in beautifying your home surroundings? Our booklet, "More Beautiful Homes and How to Get Them," contains some valuable suggestions. It is free.

THE CANADIAN NURSERY CO., LIMITED

10 Phillips Place, Montreal, Que.

Nurseries at Pointe Claire Que.

The Best Of Their Kind

LANG'S WEEDER

We offer one free with every order of $2.00 worth of our High Grade Seeds at catalogue prices

Any of the following specialties by post:

Witham Fireball Beet .....oz. 20c., pkt., 5c
Hodson Long Pod Wax Bush Bean .....lb. 30c
Copenhagen Market Cabbage ..... oz. 50c., pkt. 10c
High Grade Erfurt Cauliflower ..... oz. $1.50, pkt. 25c
Cooper's Sparkler Radish .....oz. 20c, pkt. 5c
May King Lettuce .....oz. 20c, pkt. 5c
Graham's Royal Exhibition Asters .....oz. $2.00, pkt. 10c
Graham's Royal Exhibition Pansy.. ....¼ oz. $1.50, pkt 25c
Graham's Royal Exhibition Dwarf Nasturtiums,oz. 15c, pkt. 5c
Graham's Royal Exhibition Sweet Peas, ...lb. 75c, ¼ lb. 25c, oz.10c
Graham's Mixture of New Spencer Sweet Peas.....¼ lb. 50c, oz. 20c, pkt. 10c
Graham's Central Farm Lawn Grass, composed of only the highest grade grasses .....lb. 30c
Elvetham Giant Mangel, great cropper, very nutritive..... lb. 30c, 4 lbs. $1.25
Magnum Bonum Swede, the best purple toplb. 30c, 4 lbs. $1 25

Send for our Illustrated Catalogue.

GRAHAM BROS. SEEDSMEN AND FLORISTS

53 and 55 Sparks Street - - OTTAWA

P.S.—Royal Canadian Chick Feed the best dry feed on the market; makes strong healthy chicks, 100 lbs., $3.50, by freight.

lost to Ontario and British Columbia growers if the agreement becomes law. A great injustice will be done if our market is sacrificed to the United States growers, as it most certainly will be if the trade agreement becomes law.

NOTES FROM THE PROVINCES

Nova Scotia

A. Kelsall, Wilmot

(Continued from last issue)

One or more years should be spent in preparing the land for the young trees, in order that they may make a rapid growth from the start. A root crop may be grown and the land receive a liberal application of barn manure or green manuring may be practised. Any treatment which will rot the sod and which will add humus is excellent. It will probably pay the orchardist to grow his own stock while he is preparing his land for the young trees. If he is unable to do this, it is best to secure his stock from a nursery in his locality. The advantages of home grown over imported trees are: (1) The stock can be inspected before buying; (2) the trees are obtained with less exposure to the roots; (3) there is less liability of the introduction of insect pests.

A GOOD TREE

A first class tree is one which is straight, healthy, clean, and well balanced, having a good top and a good root system. The diameter at the butt should be about three-quarters of an inch, and the tree should have plenty of vigor, which will be denoted by the amount of growth made during the preceding season. Most of the orchards of Nova Scotia have been planted as three-year-old stock, though it is thought that two-year-old stock is superior. The trees should be planted in the early spring, so that the roots can commence growth before the foliage opens. The method of pruning necessarily depends upon your ideal tree. Not more than four or five good stems should be left on, and these should be cut back to one half or one third of their original length, in order to prevent the tree from having too much foliage for the new roots. After planting the land should be cultivated every ten days or so until July, when a cover crop should be sown.

PRUNING

Mr. Johnson outlined his method of orcharding in a brief, pithy manner. With regard to pruning he cut out all dead wood, removed crossing branches, and thinned the tree to a certain extent. He recommended that coal tar instead of paint be used to cover the wounds made by removing large limbs. Cultivation was commenced as early in the spring as possible and kept up until early in July, when a cover crop was sown.

No stable manure was used. The speaker recommended the following mixture as giving excellent results: Acid phosphate, four hundred pounds; muriate of

DOUGLAS GARDENS
OAKVILLE, ONT.

China Aster Plants

QUEEN OF MARKET, white, pink early, 40c per 100.
LAVENDER GEM, pale lavender, early.
ROYAL PURPLE, rich purple midseason.
VICK'S BRANCHING, white, late.
CREGO, shell pink, late, 10 for 12c; 100 for 50c, postpaid.
List of Balsams, Salvia, Stocks and other Bedding plants will be sent free on request.
Early orders, with postal note, are solicited. All plants offered are grown from the best seeds obtainable.

JOHN CAVERS

STRAWBERRY PLANTS

For
Choicest Plants
of
Well Selected Varieties
at
Reasonable Prices
and
Prompt Delivery
order from

ONTARIO NURSERIES
WELLINGTON, ONT.
LIST FREE

GRASSELLI
ARSENATE OF LEAD

Arsenate of Lead is being used more and more in the fruit centres of the province of Ontario. The question that interests every fruit grower is this:

Is there Difference in Arsenates of Lead?

Yes. There is a big difference.

Let us suggest some points which we believe every grower should consider before placing an order for Arsenate of Lead:

1st. You wish an Arsenate of Lead that will not burn the foliage

2nd. It is desirable that an Arsenate of Lead mix readily, yet retain its adhesive qualities.

3rd. An Arsenate of Lead should contain the proper killing power.

Grasselli Arsenate of Lead contains no free acids or adulterant ingredients, contains a very low per cent. soluble Arsenic, and we have yet to learn of a case where it has burned the foliage, even though it may have been used double strength. It will mix readily and has a reputation for **adhesiveness** and **high killing power.**

Grasselli Arsenate of Lead has been used in the Niagara District for the past two seasons, and with every success.

Write us for prices.

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND, OHIO

NOW
is the time to figure on your wants for
SPRING
—1911—

We are ready to supply **Pedigreed Stock** in Fruit Trees, Vines, Shrubs Roses. Our stock of **Norway Spruce** is large. Write for prices.

We are interested in your gardening plans. Let us assist you to decide.

AUBURN NURSERIES
QUEENSTON, ONT.

The Safest Fence to Buy

Safe because it will stand shocks and ill usage.
Safe because it is a complete barrier against all kinds of stock.
Safe because its tough, springy steel wire will give real service.

PEERLESS The Fence that Saves Expense

is built of No. 9 galvanized wire of guaranteed quality. To this best of wire add the Peerless method of construction and Peerless lock and you have a fence without a rival.

We've built Peerless fence twice as good and twice as strong as is necessary under ordinary circumstances so that neither accidents nor extraordinary wear can affect it. It saves you money because it is long lived and never requires repairs. We know there is no fence made that will give you more lasting satisfaction. Write for particulars.

We also make poultry and ornamental fencing and gates—all of it of a quality that our customers appreciate and we are proud of.
Agents wanted in all unoccupied territory.

THE BANWELL HOXIE WIRE FENCE COMPANY, Limited,
Dept. O, Winnipeg, Man. Hamilton, Ont.

SPRAYS AN ACRE IN 20 MINUTES

The H. P. Spramotor will spray an acre of Potatoes in only 20 minutes. No other method known can do that work in even twice the time.

The picture above shows the H. P. Spramotor spraying Potatoes. There are three nozzles to a row, and four rows. Two spray from the sides, and one from the top. They are adjustable to height and width up to 40-inch rows The nozzles will not clog, or get out of order. Have a 12-gallon air tank, with 100 pounds pressure guaranteed with 12 nozzles open. Automatic and hand controlled. The Spramotor has agitator clean-out pressure relief into tank, and nozzle protector, all under control of the driver, from seat.

The Spramotor is made for 1 or 2 horses. Fitted for Orchard, Vineyard and Grain Crops. Can be operated by hand. The Spramotor saves enough money in time and labor to pay for itself in 1 year on 20 acres of potatoes. Don't be content with moderate results when you can increase per crop 3 or 4 times. Send for free Treatise on Crop Diseases.. Agents Wanted.

Heard Spramotor Co., ~ 1391 King Street, London, Can.

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THEY ARE THE BEST ON THE MARKET

WE MANUFACTURE
STANDARD POTS
FERN PANS
AZALEA POTS
HANGING BASKETS
SAUCERS AND
STRAIGHT PANS
Canada's Leading Pot Manufacturers

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KANSAS PRUNING KNIFE
IMPROVED

The knife that makes pruning easy. It is automatic. No levers to work by hand. Just put the hook over the limb and pull on the handle and off comes the limb. Will do heavy work and do it fast, People using the Kansas Knife say it will pay for itself every two or three days used, so it costs you nothing to own one, Circulars and price for the asking—a free "hand-out."

INTERNATIONAL TOOL CO.
49-51 PORTER STREET
DETROIT, - - - MICH.

potash, three hundred pounds; nitrate of soda, one hundred pounds per acre. Mr. Johnson prefers lime-sulphur as a fungicidal spray to bordeaux, his reasons for so doing being (1) the greater efficiency of lime-sulphur, (2) the absence of bordeaux injury, (3) its greater convenience. No poison except arsenate of lead can be used with absolute safety with lime-sulphur. The speaker had great faith in the keeping of bees as a means of obtaining a maximum set of fruit. The blossoms are pollinated either by insects or by the wind. It is a noticeable fact that bees and wild insects seem to be particularly scarce at the present time. The introduction of bees in Mr. Johnson's orchard was followed by an increase of apples. The question of the thinning of apples was also dealt with, Mr. Johnson considering it one of the best financial propositions in connection with orcharding.

TREE SURGERY

Mr. Messenger gave an excellent lecture on tree surgery. He dealt to a large extent with the top working of old trees, a method whereby desirable varieties may be substituted for undesirable ones, either by grafting or by budding. He described how by severe pruning suckers could be made to start from around the main trunk which could be grafted to a desirable variety, and at a later period the old limbs removed, thus making a new and low head on an old and previously high tree. Cankers should be cut off with either a hatchet or chisel until sound white tissue is reached, in order to effectively exterminate them.

Mr. McNeil dealt in a masterly manner with several orchard topics connected with the pruning of trees. He advocated a system of repressive pruning in order to keep the fruit spurs at a low elevation, and to have the least possible amount of bare limb. His practical demonstrations of pruning were both interesting and instructive.

SPRAYING

The subject of spraying was dealt with in a thorough manner. Recent and experimental work has shown that lime-sulphur is the equal if not the superior, of bordeaux as a fungicidal spray. The correct method of making both these sprays was described and the importance of mixing the copper sulphate and lime in a dilute form, in making bordeaux, was forcibly illustrated. Two mixtures of bordeaux were made, the one from dilute solutions and the other from concentrated solutions. The solid matter in the bordeaux made from the concentrated solutions settled to the bottom in a very short time, while the other remained in suspension for an almost indefinite period. Any arsenical poison can be used with bordeaux mixture, but arsenate of lead is the only one recommended for lime-sulphur. On account of the difficulty in making lime-sulphur of a known strength, it was thought best to use the commercial product for summer spraying.

Dahlias, begonias, gladioli, cannas, etc., free in return for new subscriptions to THE CANADIAN HORTICULTURIST. Particulars on our inside back cover.

Superintendent of Institute G. A. Putnam, of Toronto, Ont., has arranged for a demonstration train of seven cars over the Michigan Central Railway. One car will be devoted to the fruit interest, in charge of P. W. Hodgetts, Secretary of Ontario Fruit Growers' Association. In this car will be shown apples suited to the districts covered, and there will be demonstrations in packing, spraying, etc.

KEITH'S SEEDS

SPRING MAGIC

is in the air. The wise are planning their gardens. Geo. Keith & Sons have undertaken the task of making the season doubly attractive and productive to all those fortunate people whose pulse quickens at the idea of spring in the country—for instance our seed book for 1911 is ready to stand at your elbow to tell you what, when and where about seeds. We want you to have a copy.

Keith's Selected Vegetable and Flower Seeds

PRICES QUOTED ARE POST PAID

Containing what we consider the cream of their respective classes, made up for the purpose of those who are in doubt as to what to order, and are specially recommended to holders of small gardens. These varieties will supply the family with fresh vegetables from early Spring till the snow flies, and with plenty left over for the Winter months.

VEGETABLES: Pkt.

Keith's Selected Wax Beans .... 5c, lb. 25c
" " Green Beans .... 5c " 25c
" " Early Beet .... 5c, oz. 15c
" " Late Beet .... 5c " 15c
" " Early Cabbage .... 5c " 20c
" " Late Cabbage .... 5c " 25c
" " Carrot .... 5c " 15c
" " Cauliflower .... 25c "$3.00
" " Celery .... 10c " 50c
" " Early Corn .... 5c, oz. 20c
" " Late Corn .... 5c " 20c
" " Cucumber .... 5c, oz. 15c
" " Cress .... 5c " 15c
" " Egg Plant .... 5c " 30c
" " Endive .... 5c " 25c
" " Corn Salad .... 5c " 15c
" " Kale .... 5c " 15c
" " Kohl rabi .... 5c " 20c
" " Leek .... 5c " 25c
" " Lettuce (curled) .... 5c " 15c
" " Lettuce (head) .... 5c " 15c
" " Musk Melon .... 5c " 25c
" " Onion, yellow .... 5c " 25c
" " Onion, pickling .... 5c " 20c
" " Early Peas .... 5c, lb. 30c
" " Medium Peas .... 5c " 30c
" " Late Peas .... 5c " 30c
" " Parsley .... 5c, oz. 15c
" " Pepper .... 5c " 50c
" " Parsnip .... 5c " 15c
" " Radish (round red) .... 5c " 15c
" " Radish (long white) .... 5c " 15c
" " Salsify .... 5c " 25c
" " Spinach .... 5c, lb. 60c
" " Squash (for Winter) .... 5c, oz. 20c
" " Squash (for Summer) .... 5c " 20c
" " Early Tomato .... 5c " 25c
" " Turnip .... 5c " 10c

Herbs, Dill, Thyme, Marjoram, Sage, Summer Savory, pkt. 5c
Dutch Set Onions .... 20c lb.

FLOWERS:

Keith's Selected Victoria **ASTERS,** pure White, Deep Pink, Light Blue and Scarlet; Choice Mixed Sorts, 10c per pkt. Set of 5 for 30c.
Keith's **ANNUAL HOLLYHOCK** .... pkt. 10c

Keith's Selected Dwarf Mixed **NASTURTIUMS**..... Oz. 10c, ¼ lb. 20c, lb. 75c
Keith's Selected Tall Mixed **NASTURTIUMS** ..... Oz. 10c, ¼ lb. 20c, lb. 75c
Keith's Selected Single **POPPY,** mixed colors ..... Pkt. 5c, oz. 35c
Keith's Selected Double **POPPY,** mixed colors ..... Pkt. 5c, oz. 35c
Keith's Selected Mixed **PANSY,** mixed colors .... Pkt. 25c
Keith's Selected Giant Flowering **SWEET PEAS,** pure White, Pink and Rose, Variegated, Scarlet and Crimson, Blues, or choice Mixed Sorts ..10c per oz., lb. 65c
CANNA ROOTS—Crimson, Pink, Cream, Yellow, Red.. .... Each 10c, per doz. $1.00
TUBEROUS ROOTED BEGONIAS—Single, Yellow, Rose, Scarlet, Crimson, White and Orange ..... Each 5c, doz. 50c, 50 for $1.75
TUBEROUS ROOTED BEGONIAS—Double (in separate colors as above) ..each 10c, doz. 85c, 50 for $3.00
CALADIUM—Large Bulbs .....15c each, $1.50 per doz.
GLADIOLI—Keith's Choice Mixture ..... Doz. 35c, per 100 $2.50
GLADIOLI—Keith's Fine Mixture, Doz. 25c, per 100. $1.50
DAHLIA — Blanche Keith, Pure Yellow Cactus; **Gates Ajar,** Crimson; **Keynes White, Progenitor,** Carmine; **Strathlen Krone,** Cardinal Red; **Countess of Lonsdale,** Salmon Pink or Amber. ..... 20c each, or set of 6 for $1.25

Select from the Following List of Flower Seeds, 3 pkts., 15c.; 12 for 50c. Postpaid.

Aster (Red, White, Blue or Mixed)		**Petunia**
Alyssum	**Larkspur**	**Portulacca**
Balsam	**Morning Glory**	**Pink**
Carnation	**Marigold**	**Sweet Peas**
Candytuft	**Mignonette**	**Summer Cypres**
Cosmos	**Nicotiana**	**Salvia**
Daisy	**Poppy**	**Verbena**
Hollyhock	**Pansy**	**Zinnia**

Oz. pkts. any of the following, 15c. each. Postpaid.

Morning Glory, Scarlet Runner Beans, Sweet Peas, Nasturtiums Tall, Nasturtiums Dwarf.

Oz. pkts. any of the following, 35c. each.

Aster, Alyssum, Candytuft, Poppy, Mignonette.

Lawn Grasses, 30c. per lb. Postpaid.

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124 King Street, East, Toronto, Ontario

SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—**Currants**, Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—**Raspberries**, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—**Garden Roots**, Asparagus, Rhubarb, Perennial Celery, Write for Catalogue.

WM. FLEMING, Nurseryman, Box 54, Owen Sound, Ontario

Get 98% or Better Perfect Fruit

There will be no "off year" for your trees if you cultivate them right and protect them against all insect enemies with

ELECTRO Arsenate of Lead

(in Powdered Form)

It is certain death to all leaf-eating insects. You can depend absolutely on dry Electro Arsenate of Lead because it is the only one in amorphous (non-crystalline) form. Mixes instantly with water and stays long in suspension—or can be used as a dust. Rain cannot wash it off. We guarantee it to contain 32½-33% arsenic oxide—twice the strength of other brands—yet it will not harm the tenderest foliage because it contains less than ½ of 1% water-soluble arsenic. Prove it from tests at Conn. and N. J. Agri. Exper. Stations. Write us for them.

Send for folder on Electro, interesting to all fruit growers. Folder on Electro Lime Sulphur tells how to use this solution which is certain death to San Jose Scale and sucking insects and the best fungicide for summer treatment.

Buy Electro brands from your dealer, but if he cannot supply, send to us for prices and proofs and name of nearest distributor.

THE VR ELAND CHEMICAL CO.
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IF YOU WANT THE SEEDS
GET THE CATALOG
DEALERS EVERYWHERE SELL RENNIE'S SEEDS
THE FINEST IN THE LAND.
WRITE NEAREST ADDRESS FOR CATALOG.
WM RENNIE CO LIMITED, TORONTO, MONTREAL, WINNIPEG, VANCOUVER

British Columbia

The Grand Forks Fruit Growers' Association got a car load of lime-sulphur early last winter and sold it to growers out of the Association at a price just slightly above cost. This enabled our orchardists to secure the material for spraying at a reasonable price in spite of high freight rates. A very large percentage of them made purchases, and spraying throughout the district was general. One gallon of the concentrated sulphur was used to ten gallons of water.

During November a number of the orchardists sprayed with bordeaux mixture, using eight pounds bluestone, eight pounds lime to fifty gallons of water, a few using as high as twelve pounds bluestone, twelve pounds of lime to fifty gallons water; for contrary to the conclusions of some experts, the fungus known here as apple anthracnose has made its appearance. It has usually been considered that in this dry climate anthracnose, even if it made its appearance, would not live, but it does. THE CANADIAN HORTICULTURIST should be in all orchardists' hands.—Cooper Bros., Grand Forks, B.C.

W. S. Johnson, wholesale fruit merchant of Brisbane, Australia, has written for prices of apples and pears in the province and for facts concerning the freight rates and shipment. He states that he became interested in British Columbia fruit resources through reading accounts of the recent Canadian apple show and believes a good trade can be worked up with Brisbane merchants. He states he will probably come personally to look over the field during the year.

Alberta

A. G. Bennett, Edmonton District, Alberta

Will fruit of any kind grow in Northern Alberta? This is the question a new settler asks when he lands in the vicinity of Edmonton. It is 100 chances to one that the answer is "No." especially if the one he asks is an "Old Timer," as we class our earliest settlers. Why is he so sure that fruit will not grow in Alberta? Simply because he has not had the time or is too much taken up in growing grain to pay any attention to his surroundings.

Take a look in our upland pastures. What do we find? Strawberries everywhere. Wander into our burnt timber regions: Raspberries, blue-berries, saskatoons, pin-cherries, red and black currants, mountain-ash and so forth—all growing and ripening profusely. This was what struck me the first summer after I arrived from Denver, Colorado. Surely, if such wild fruit will grow to perfection without cultivation, why not try the cultivated kinds under thorough cultivation?

PRODUCE HARDY VARIETIES

Then came my first difficulty. To produce fruit one must bring his stock from some district in the same latitude or better still, from further north, to be successful. This was impossible. The only alternative was to get stock from the south, and by careful nursing over the first winter, cross-fertilize the blossoms the following summer with the native strawberry, and thereby produce a plant to stand our climate. The result has been a complete success. The first northern grown strawberries were sold in commercial quantities in Edmonton this summer.

The same course will answer with raspberries, gooseberries and currants. It would seem, therefore, that before many years the district between Edmonton and

Pinkerton's
SWEET PEAS HAVE NO EQUAL

If You Want Success Plant Early

Specialty Mixture—Contains only the best of the Orchid Flowered Spencer Sorts, which are all grown separately. 1-4 lb. **$1.00**; Oz., **30c.**; Packet **10c.**

Monarch Mixture—Made up exclusively from the best in the general list. 1 lb. **$1.00**; 1-4 lb. **30c.**; Packet **10c.**

One customer who has been growing Sweet Peas for years, not only in Canada but in England and has had seed from all sources, writes the following:—"The blooms produced from the Sweet Pea Seed you sent to Mrs. Gibbs of Como, were the **Finest, Largest** and **Strongest** we have ever had."

Signed, Lachlan Gibb.

If you want really good **Vegetables** and **Flowers** this year, send for my catalogue. Prices right and your success assured.

ROBT T. PINKERTON

709 Eastern Townships Bank Building
MONTREAL

HURST SPRAYERS ON FREE TRIAL

NO-MONEY-IN-ADVANCE. PAY AFTER IT HAS PAID FOR ITSELF.

LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." *We pay freight. Wholesale dealers' prices.*

Man-Power Potato & Orchard Sprayer.
Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in *half*. High pressure from big wheel. Pushes *easy*. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needn't-send-a-cent to get it "on trial." You can get one free if you are first in your locality. Write now.

Horse-Power Potato & Orchard Sprayer.
For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with **adjustable** round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** *Try this machine at our expense with "your money in your pocket."* See **free offer** below. Write **today.**

Fitz-All Barrel Sprayer.
Fits *any* barrel or tank. High pressure, perfect agitation, easy to operate. *Brass* ball-valves, plunger, strainer, etc. **Automatic** strainer. *No "cup leathers or rubber"* about any of our sprayers. Furnished plain, mount on barrel, or on wheels as shown. *A year guarantee. It don't cost you "a cent" to try it in your orchard. Get one free. See below.* **Write today.**

FREE—Get a sprayer **FREE.**—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your Neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with $2.00 or send you check if you have paid cash.

For every Man-Power Potato & Orchard Sprayer we sell we will credit you with $3.50 or send check.

For every Horse-Power Potato & Orchard Sprayer we sell will credit you $3.50 or send check.

We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card **NOW.**

Ontario Seed Coy., Successors, 138 King St., Waterloo, Ont.

COUPON—**Fill out and send today.** *This Coupon will appear again.*

ONTARIO SEED CO., SUCCESSORS, 138 King St. Waterloo, Ont.

Send me your Catalog, Spraying Guide, and "special offer" on the sprayer marked with an X below.

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No. 25 Planet Jr Combined Hill and Drill Seeder, Double-Wheel Hoe, Cultivator and Plow opens the furrow, sows seed in drills or hills, covers rolls and marks out next row in one operation; and it has perfect cultivating attachments besides.

No. 8 Planet Jr Horse-Hoe and Cultivator will do more things in more ways than any other horse-hoe made. Plows to or from the row. A splendid furrower, coverer, biller, and horse-hoe; unequaled as a cultivator.

The 1911 Planet Jr illustrated catalogue is invaluable to every progressive farmer and gardener. 56 pages brimful of helpful hints on labor-saving. **Free and postpaid.** Write for it today.

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Write for the name of our Nearest Agency

The **horse** does all the work, except holding the pole, with the **H. P. Spramotor.** It can be operated by either horse or hand. Has 8 nozzles at 175 lbs. pressure, which practically smoke the tree with spray. All automatic. The number of nozzles can be arranged to suit size of trees. The largest tree may be sprayed. Same price for 1 or 2 horses.

The **H. P. Spramotor** can be arranged for vineyards, row crops, strawberries or grain crops. The nozzles will not clog.

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The True Test of Fertilizer is the Crop Test

Crops often double their yield when they have the nitrogen they need.

NITRATE of SODA

Cheap Clean
Easy to Apply

We recommend Nitrate of Soda because its nitrogen is all available, that is 100 per cent. of it, and at once. You don't buy filler and it acts instantly. See us for prices.

CHEMICAL LABORATORIES, Ltd.
148 VAN HORN STREET - - - - - TORONTO, CANADA

the Rocky Mountains will be as good a fruit producing country as that east of the Rockies in Colorado, and with this advantage—we do not need irrigation—have more hours of sunshine and as long a growing season. Our soil or all locations are not suitable to fruit growing. The same may be said of the settlers; one man will succeed where ten will fail on account of neglect and incompetence.

Compulsory Spraying

I think probably the present condition of the apple industry will be sooner rectified by the farmers who own orchards and who make them a secondary consideration on the farm, turning them over into the hands of the interested apple men, either by lease or purchase.

I would also suggest bringing into effect compulsory measures and compel careless growers to give proper treatment to at least control destructive insects and diseases, for instance, the codling moth larva and many others. We are taught that the law is a school master, and so it will be in this case. It will cause men "to sit up and think" when nothing else will. Men who will not try to learn for their own personal profit, could in this way be interested to attend the public demonstrations and discussions re apple culture and care, if for no other reason than to get posted on how to evade the law, and once within the charmed circle would be led to a better knowledge of the subject and thus have their interest awakened.

I have little hope of otherwise helping men who are only breeders of pests and troubles for their neighbors. They have no regard for their neighbors' welfare, and the sooner we compel them to get interested or get out of the industry, the better for themselves and all concerned.—Joseph Tweddle.

Mr. W. Armstrong, Queenston, writes us that he would like to be one of a party of Canadian fruit growers to visit the chief ports and markets of Great Britain, as suggested in THE CANADIAN HORTICULTURIST last year in order to become familiar with conditions there and boom the export trade in Canadian fruits. His opinion is that eight or more leading fruit growers with this object in view would be of immense value to the fruit industry of Canada, besides a most valuable medium of advertising the Dominion from a horticultural point of view. We already know that the various organizations in Great Britain who are interested in the handling of fruit would give such a party a warm welcome. Could not the Dominion Fruit Division organize and make the necessary arrangements for such a deputation?

Mr. Robert Thompson, vice-president of the Niagara Peninsula Fruit Growers' Association in commenting on the proposed tariff changes pointed out the fact that while all the duty on fruits had been removed, there had been no corresponding reduction of the tariff on manufactured articles, such as baskets, pumps, fertilizers, and spraying mixtures. That question, he said, will be brought to the Government's attention. Mr. Thompson pointed out that growers of cherries, raspberries and other late berries will gain as much as they will lose, but that the principal sufferers will be the early peach and vegetable growers. He added that in case the growers can get no better terms the only chance of competition will be to grow a variety of later fruits to sell after the United States fruit season is finished.

The Bissell

With wings attached Bissell Orchard Disc Harrow extends over 12 feet wide. Detached it is compact regular-size Harrow. You can regulate gangs to follow any slope of ground. You can throw weight on outer ends of gangs so that they will run even and cut tough sod away from trees or vines. It's reversible—Out-Throw to In-Throw. Write Dept. N for catalog or consult local dealer.

T. E. Bissell Co. Ltd. Elora, Ont.

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PURE BONE MEAL IS THE CHEAPEST

FERTILIZER.

THIS PLANT FOOD IS ALL FROM OUR CANADIAN SOILS AND SHOULD ALL GO BACK

SEND FOR PRICES, ETC.

THE W. A. FREEMAN CO. LIMITED

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WHICH WAY ARE YOU PAYING FOR AN I H C GASOLINE ENGINE?

THERE are two ways—a quick, easy way and a long, costly way.

The first way is to go to the I H C local dealer, pick out the style and size suited to your needs—pay for it—take it home and set it to work. It will operate your cream separator, feed grinder, thresher, fanning mill, turn your grindstone, saw wood, etc.

The other way is to get along as best you can without it, and pay for it over and over again in the time and money you lose by not having it.

"Procrastination is the thief of time," and time is money. An I H C Engine saves time—saves money. It's an investment that pays big dividends, day after day, year in and year out, through its capacity for doing work at less cost than any other power.

I H C Gasoline Engines

are made in all styles and sizes, I to 45-H. P., vertical and horizontal—stationary, portable, and tractor. Their efficiency, economy, and dependability have been proved by years of service. Thousands of owners consider an I H C Gasoline Engine one of the best paying investments they ever made.

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While you're delaying you are paying, so why not have what you're paying for.

I H C Service Bureau

What is it? A clearing house of agricultural data. What does it do? Helps farmers to help themselves. How can it be used? By sending your farm problems and puzzling questions to the Bureau. We are co-operating with the highest agricultural authorities and every source of information will be made available to solve your difficulties. We shall be pleased to have an opportunity to assist you. Write the I H C Service Bureau.

CANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

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M. W. Savage, sole owner of "International Stock Food," and also of "International Stock Food Farm," positively Guarantees that His World Famous Champion Stallions, Dan Patch 1:55, Cresceus 2:02¼, Minor Heir and Arion 2:07¾ and his brood mares and colts eat it every day. You are specially invited to visit this Great Harness Horse Breeding Farm ten miles from Minneapolis, and see the practical results of the every day use of the greatest purely vegetable animal tonic ever used on a farm. It is constantly used and strongly endorsed by over Two Million of the most up-to-date Stockmen and Horse Breeders of the world.

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Is sold by over 100,000 dealers on a spot cash guarantee that the use of one ton will make you a net profit of $300 over its cost, or that 100 pounds will make you $18 net profit. If it ever fails your money will be promptly refunded. International Stock Food is a strongly concentrated medicinal preparation composed of roots, herbs, seeds, barks, etc., and is equally good for horses, colts, cows, calves, hogs, pigs, sheep, goats, etc. It is fed in small amounts mixed with grain and purifies the blood, tones up and strengthens the system and greatly aids digestion and assimilation, so that each animal obtains more nutrition from all food taken. It is not the amount of grain fed but the amount assimilated or taken into the system that fattens or keeps your stock in good condition, and as International Stock Food increases assimilation it will save you money. It will make you more money than you can possibly make without its use. It also cures and prevents many forms of disease, and is absolutely harmless, even if taken into the human system. International Stock Food is endorsed by over two million farmers who have used it for years. The editor of your farm paper will tell you that we do exactly as we agree, and as reference we give you the Traders Bank of Canada.

PROVED ITS INVALUABLE WORTH.

KEHO, ALTA, 10-10-10.

The International Stock Food Co., Toronto, Ont.—Gentlemen: I feel in honor bound to offer you my testimonial in favor of your Stock Food. I have used it faithfully this summer and proved its invaluable worth. It made my pigs grow, the results were simply marvelous. I would not be without it for anything. My horses got a very nasty distemper cough in the spring, but the food cleaned it completely out of their system and they went through the Spring work fine and came out of it rolling fat. Please duplicate my last order. Mrs. Coe requests me to tell you that your Poultry Food is excellent, that feeding your Poultry Food doubles the quantity of eggs, in fact, it could not be better for egg production and keeping the fowl healthy.—Yours sincerely (sgd.) ALF. R. COE.

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No matter how pleasing the tone of a piano may be, unless that tone endures there cannot be real satisfaction. This tone durability in

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is secured through an exact knowledge of what to use, how and where to use it, and a vigilant supervision over every detail during construction. The name Gourlay is an assurance of reliability, and the piano itself a guarantee of its possessor's musical taste.

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MEEHAN'S MALLOW MARVELS, most brilliant new production of scientific plant breeding. Immense flowers from eight to ten inches in diameter, in fiery crimson, rich blood-red and soft shell-pink. Meehan's Marvels surpass all other perennials in profuseness of bloom, flowering propensities and brilliancy of color. **Colored plate and full particulars free on request.**

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MONTREAL

Book Review

"Catacombs of Worldly Success," or "History of Coarsellor Dell," is the title of a book issued by the Metropolitan Church Association of Waukesha, Wis. It gives a glimpse of the interior workings of a large industrial concern, showing its social and business sides with relation to its business policies. The author is F. M. Messenger, who claims that the incidents described are drawn from real life.

Floriculture at the Ontario Agricultural College

A pleasant call was made recently by a representative of THE CANADIAN HORTICULTURIST to the College greenhouses. Under the fostering care of Mr. Hunt, we found everything in good shape. Our first visit was to the large greenhouse laboratory, where could be seen the work of about 130 students in plant propagation from seeds and cuttings, transplanting, and the pot culture of bulbs. Each student has a small flat or box, in which were three or four dozen cuttings of different varieties of plants suitable for window or garden culture, as well as a box for seeds of hardy border plants. In addition to these each student had a pot of hyacinth and narcissus bulbs. These last were in full flower, giving an additional attractiveness to this interesting work. The cuttings were evidently well rooted and ready for transferring to small pots; very few failures were to be seen. The uniform success of each student's work was very noticeable, testifying to the individual interest shown in the work. The classes under Mr. Hunt's tuition are the second year students, the fourth year graduating class in Horticulture, and a class of twenty young ladies from the Macdonald Institute. Outdoor floriculture especially suited for home surroundings also receives considerable attention, even more so than the subjects mentioned. This is a most important work, and one which should prove to be a great factor in the beautifying of farm home surroundings throughout our country.

The various collections of plants in the greenhouses were mostly geraniums, callas, begonias, palms, primulas, fuchsias, hyacinths, and narcissus and similar kinds suitable for window culture. One batch of a new Chinese primrose, "The Duchess," was particularly noticeable. The foliage of this variety is of a rich, bronzy green color and of a vigorous habit. The trusses of bloom, as well as the individual flowers, were very large and conspicuous. The centre of the flower was of a greenish yellow, heavily suffused around with rich carmine, the margin of the flowers being pure white. The plants were raised from a complimentary packet of seeds from Sutton & Sons, Reading, England, the originators of the new variety. Some fine plants of giant primulas and a batch of showy cinerarias, with the callas, begonias, freesias, and other plants, made these houses look very bright and attractive. All of the plants looked clean, healthy and thrifty.

Our visit to this department was of necessity a very brief one. Sufficient, however, was seen to show that good work is being done, work that is deserving of the heartiest support possible.

Your choice of two of the newest climbing roses for one new subscription to THE CANADIAN HORTICULTURIST.

Seeds and plants free. Read our Premium Offer.

There's No Re-planting

— no seed wasted — no crops lost — if you sow Ewing's Seeds.

If soil, weather and tilling are right

EWING'S Reliable Seeds

will do their part and you'll be rewarded with splendid crops.

Even under unfavorable conditions Ewing's Reliable Seeds give far better returns than most seeds, because of their freshness, vigor and vitality.

Why not make a bid for the best crops grown in 1911 by insisting, when you buy your seeds, on getting EWING'S?

Write for our illustrated Catalogue, and if your dealer hasn't Ewing's Seeds buy from us direct.

WM. EWING & CO.,
Seedsmen
McGILL ST., MONTREAL. 9

Every artistic home should contain a

Gerhard Heintzman PIANO

because this instrument presents the most up-to-date features and improvements; is, in fact, the

Ideal Piano

for the home. This reputation has been gained entirely through merit during the past half century of honest endeavour. A demonstration at our salesroom will convince you. Descriptive literature sent free on application.

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A large assortment of Weeping Mulberry, Ash, Willow and Elms, Evergreens, also all kinds of

Shrubs, Fruit and Ornamental

Trees, Hedge Plants, Roses, Vines, Etc. All stock in first-class shape. Order early for spring planting. Prices 10 cents up.

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London, Ontario

No. 3 BROWNIE CAMERA

Pictures 3¼ x 4¼. Price $4.00.

This latest addition to the popular Brownie family meets the demand for a camera, which is equipped with the essentials for a high-class of amateur work, but is so simple that even the children can use it with good results.

This camera has the first quality meniscus achromatic lens, Eastman rotary shutter, fixed focus, two view finders, so that either vertical or horizontal exposures can be made. It is a neat and attractive camera, covered with handsome imitation grain leather. It is a convenient shape to carry, and weighs but 24 ounces. This Brownie takes four, six or twelve exposure Kodak film cartridges and like the Kodak, loads in daylight.

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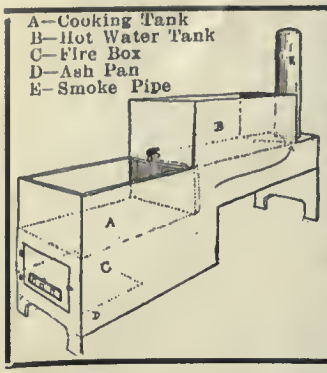

GALVANIZED STEEL SPRAY COOKER

It is easy to make home boiled lime sulphur if you have a proper spray cooker. We manufacture two kinds of cookers, one with a single tank and one with a double tank, as shown in illustration. They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. Can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are GUARANTEED.

Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Write us to-day.

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I H C Service Bureau

The Bureau is a center where the best ways of doing things on the farm, and data relating to its development, are collected and distributed free to every one interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. If the questions are sent to the I H C Service Bureau, they will receive prompt attention.

Items of Interest

Mention has already been made in THE CANADIAN HORTICULTURIST of the very fine exhibit of British Columbia apples that were shown during November and December in Montreal and Ottawa by the Central Okanagan Lands, Limited, of Kelowna, BC.., The apples shown were direct from the Canadian National Apple show at Vancouver and were part of the famous exhibit from the Kelowna District that won the highest awards. The exceptionally fine coloring of the apples, their uniformity and the excellent manner in which they were packed surprised all who saw them and led many of the city people who had never seen such apples before to return, bringing friends with them. The varieties shown included: Hubbardston Nonsuch, R. I. Greening, Ontario, Spitzenburg, Haas, Canada Red, White Winter Pearmain, Ribston Pippin, Black Twig, Belle de Boskop, McIntosh Red, Akins Red, Baldwin, Paragon, Lady Apple, Yellow Newtown, Gano, Wagener, Grimes Golden, King David, Sutton Beauty, Stark, Rome Beauty, Winter Banana, Salome, King of Tompkins, Black Ben Davis, Talman Sweet, Northern Spy, Snow, Delicious, Jonathan, Black Detroit, Ben Davis, Kelowna Seedling, and Rawle's Janet. The Central Okanagan Lands Limited has met with great success in its sale of land, having sold over $300,000 worth of British Columbia land to parties in Ontario and Quebec since about the first of September.

Prof. Wallace, the Cornell University expert on lime-sulphur, makes the following summary of the results of his investigations last year on lime-sulphur injury:

First, that heavy drenching is a common cause of foliage injury. Second, that much of the burning of apple foliage last year following the application just after the blossoms fell was due to previous scab infection of the leaves. Third, that arsenate of lead is the only insecticide that we yet know which may be used in the lime-sulphur with safety. It not only decreases the burning but actually increases the fungicidal value of the mixture by fifty per cent. Fourth, that injury to the fruit and foliage by lime-sulphur is much less serious than that caused by bordeaux under the same conditions. Fifth, that the addition of lime or the presence of sediment does not materially affect the burning qualities of the lime-sulphur one way or the other. Sixth, that cultivated, vigorous trees will withstand foliage injury better than trees in neglected orchards.

A meeting was held in Rochester, recently, in connection with the New York Fruit Growers' Association and approved by the Pennsylvania Horticultural Society, Michigan Pomological Society, New Jersey State Horticultural Society, Adams County, Pa., Pomological Fruit Growers' Association and the Western New York Horticultural Association to secure legislation, both state and national tending to raise the grades and standards and improve the methods of packing all fruits and to secure uniform state legislation with regard to size of packages.

I am very much impressed with THE CANADIAN HORTICULTURIST as I find some very interesting information therein.—Leonard Crooks, 68 Kenwood Ave., Wychwood Park, Ont.

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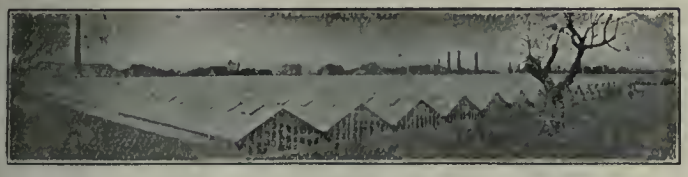

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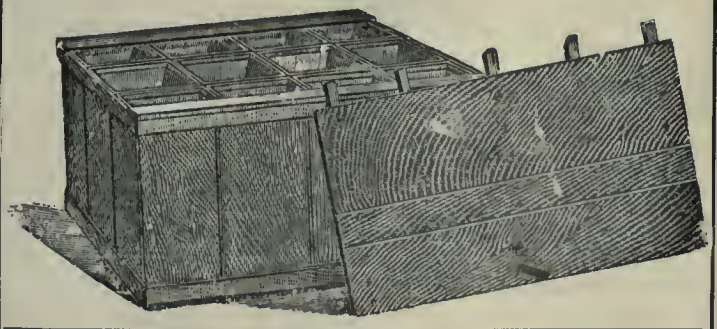

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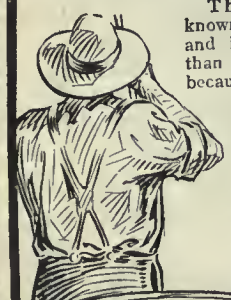

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Necessity of Spraying

There is no longer any certainty of a crop without spraying with both insecticides and fungicides, no matter how favorable the season or how fertile the soil. In fact, there is a certainty of ultimate loss. How great this may be was demonstrated all over Canada the past year by the almost total failure of fruit in unsprayed orchards, while sprayed orchards have given bountiful crops.

Farmers complain that there is no money in fruit growing. It is small wonder when one cannot go into a fruit store and buy a few apples that are fit to eat. They will be either wormy or covered with scab. If a man will not spray he might better dig out the trees by the roots and grow some crop that will make money, as an unsprayed and uncared for orchard is simply occupying good land and giving no interest on the investment, as hundreds of acres of orchards all over the country testify. Many farmers think that good apples cannot be grown on old trees. This is unfortunate, as this erroneous opinion prevents the spraying of unproductive orchards all over the county which could easily be made dividend payers.

The barrel of Northern Spies which won the first prize at the New England Fruit Show was grown in an orchard forty years old that previous to eight years ago was neglected and had produced practically nothing. Since that time it had been properly plowed, pruned, sprayed and cultivated, with the result that it grew the best barrel of apples in New England. Nor need we go to New England for examples of what can be done, as a number of the prizes won at the recent Ontario Horticultural Exhibition were from orchards that had been neglected for years and only given proper care during the past year.

This only illustrates what can be done with the old orchards scattered all over Canada. With a little care these would produce high grade apples. Fertilize, prune, cultivate, and spray thoroughly. The old trees will then pay you well for your efforts on their behalf.

Profits from Vegetable Growing

Wm. Clements, Clarkson, Ont.

Although the consumer generally pays a very fair price for fruit, it does not realize any extraordinary profits to the producer. A basketful of cucumbers may sell for 25 cents. More generally, however, 15 cents a basket is the average price to the producer. An eleven-quart basket costs three cents, express charges five cents, selling commission 10 per cent—2½ cents; cartage one cent, or a total of 11½ cents, leaving at the 25 cent rate 13⅓ cents for the producer—or at 15 cents, next to nothing. Tomatoes often sell for as low as 15 cents a basket. Last year, for the better part of the season, they averaged 20 cents a basket. The charges on tomatoes will figure approximately the same as in the case of the cucumbers.

The consumer pays at least 40 cents for this same basket for which the producer received 25 cents. The Express Company gets about one quarter of the gross returns received by the producer. It may therefore readily be seen that there is not so much money in the business even if the consumers do pay fair prices. Reasonable profits can be expected only where the produce is shipped in quantities; smaller shippers have little left after deducting charges.

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THE CANADIAN FLRIST
PETERBORO - - - ONTARIO

The Canadian Horticulturist

Vol. XXXIV APRIL, 1911 No. 4

Orchard Cultivation*

W. Dreher, Macdonald College, Que.

A KNOWLEDGE of this practice is becoming more and more important, for upon it depends largely the success of the fruit grower. The demand for good fruit, especially apples, has increased very much in the past few years on both the home and foreign market, and there is no reason why a greater number of people in this province should not specialize in this branch of agriculture which has proven to be so profitable to our neighbors in the province of Ontario and to the grower of British Columbia.

The argument that the growers of Quebec cannot compete successfully with those of the provinces just mentioned on account of unsuitable soil and climatic conditions is unfounded, for nowhere else can some of the hardy varieties be grown and produced so well as in this province. A good many farmers possess fruit trees which yield fair returns; but to make fruit growing a profitable business the trees must be properly cared for, and if any one of the operations is more important than another, I should say it is cultivation. The method that has in principles been recognized to be the best by all successful fruit growers and at Experimental Farms is the following:

PREPARATION OF THE GROUND

Where ordinary field crops, such as cereals and hoed crops yield profitable returns, then the soil will be rich enough for an orchard generally speaking. The required conditions are the same as for these, namely, a good friable loam soil of good depth, tilth, and drainage. The required conditions, except the last, can be obtained by thorough plowing and subsequent tillage. Experience has taught us that land in fine tilth has produced better crops than untilled land, even if the latter did contain more plant food. The reason is that tillage unlocks plant food, makes it more readily available, and regulates the moisture holding capacity of a soil which is a very important factor in fruit growing. If the soil is not deep and the subsoil compact it will be necessary to work the latter also to some depth, and drainage with tiles will ameliorate such soils most efficiently. Should the chosen piece have been in sod for some time it will be found best to grow hoed crops on it for a year or two, and this will give the farmer an opportunity to become acquainted with it and make all necessary improvements. It must be borne in mind that the ground should give suitable moisture conditions, and this capacity is increased by adding humus to light soils and draining waterlogged land. Moreover, it is of equal importance that the roots shall be able to penetrate the soil easily; therefore, it must be friable and well and deeply plowed. Heavy lands are improved by the addition of vegetable matter. Once a soil has been, so to speak, transformed into suitable conditions of food and moisture and the trees have been planted, it remains to maintain these conditions, and this leads us to the question of subsequent cultivation or tillage.

*Extract from an address delivered before the Quebec Pomological Society.

Must Have It

"No use being in the fruit business without The Canadian Horticulturist. One might as well quit both as one. Please find enclosed one dollar for two years' subscription."—Watson C. Orr, Winona, Ontario

CULTIVATE THE WHOLE AREA BETWEEN THE TREES

Measuring the length of roots of young trees and comparing that length with the width of the crown it has been found that the roots occupy an area twice as large as the crown does, it follows that if the trees are planted the usual width apart their roots will ultimately occupy the whole area between the rows; moreover, the roots most actively engaged in taking up food are the youngest; those that are farthest away from the trunk. These facts show that in order to obtain the best results the whole area occupied by the roots must be cultivated, and this holds equally true for a young orchard, because in that case the ground must always be in such a state as to allow the roots to expand rapidly and grow at a depth when moisture is always available, and where they shall be protected more or less from the plow or frost. The sooner and the better cultivation is practised the better the results obtained later—and that with considerable less work.

The next important point to be kept in mind is that all cultivation should begin as soon as the ground can be worked to advantage. The season of wood growth begins early in spring and ends in the middle of summer. Consequently the ground should be in such condition as to permit the trees to make a vigorous early start and continue to furnish a readily available supply of food and moisture during the summer.

DEEP PLOWING

The first step in subsequent orchard tillage consists in plowing deeply, diminishing the depth close to the trees. The depth will vary also according to the condition of the land at the start, heavy lands will need deep cultivation, taking precautions not to touch them while too wet, as puddling would be the result. On the other hand, lands already friable need not be plowed deeply. If there is sod on the ground, it is advisable to plow it under early in the spring, for this will cause its more rapid decomposition. If there is no sod, and the land needs humus or manure, this is also a good time to plow it under. In order to get a level culture, plow one year towards the trees and the next away from them. Thus the first step consists in improving the physical and chemical condition of the soil, the second, however, is to hold the moisture in the ground, or at least to prevent its rapid evaporation.

The ground left exposed after plowing begins to settle, becoming more or less compact, and a straight path is thereby formed for the underground water to pass into the air. This would also exist if grass is growing for the large leaf area would transpire a great deal of water. Therefore, the remedy in the first case is to form a dry soil mulch on the surface, whereas the loss of water in the second case can be prevented by not growing grass, but following a system of cultivation. The best mulch is prepared by breaking up the surface soil into very small particles to a depth of not more than three to four inches after plowing. This corresponds to the hoeing of crops which checks this rapid evaporation, destroying weeds at the same time. This operation must be repeated in the orchard quite often, if possible, every 10 days, or at least after every rain.

Regarding the tools used in the above operations, there are several orchard plows facilitating the plowing close to the trees, but the ordinary plow with a set over beam is recommended, and the surface tillage can be done satisfactorily by means of the various disc and smoothing harrows. Even the cultivator or spring-tooth harrow may be used when their teeth are so arranged as not to go deeper than say four inches.

CROPPING BETWEEN THE ROWS

For the first few years vegetable or small fruits, such as strawberries, may be grown between the rows of trees. The advantages of such a practice depend largely upon the judgment of the grower. He must decide what kind of crops will suit his purpose best and what length of time they are going to occupy the ground. Some crops take up the water and food that the trees need, and many would interfere with the care of the orchard. In general, cropping between the rows is profitable, provided following points are observed: 1st, Three feet of space must be left all around the young planted trees and this space be increased by a foot or so every year as the trees grow. 2nd, The crops should be a hoed crop or crops, care of which benefits the trees as well and in no way impoverish the soil. 3rd, This practice of cropping should be discontinued after eight or ten years and all the space given up to the trees.

Peach Culture

J. W. Smith & Sons, Winona

PEACHES require a well drained soil. If the land is rolling and well drained, naturally it is not necessary to underdrain. Put in a hoe crop, such as potatoes, tomatoes, or roots of some kind, which will leave the ground in good shape. The following spring work your ground up well, then mark your field out by commencing at the base of the field, stretch a wire or cord along the end, then use a pole the distance you want your trees apart, and be very exact, marking off the ground and line at the same time, going across the base of the field and up the side and across the other end, coming back to starting point measure off the other side. Then with a man at each end of your line, working towards each other staking out, moving each time the distance you want your trees apart, until you have your field marked out. I consider twenty feet each way a good distance for planting, or twenty-five by eighteen feet.

When getting your trees, buy from some reliable man near by, and order a year before setting out; have them grown the way you want them. I prefer to have the main stem nipped back eighteen inches above ground, and not trimmed like a whip, but about ten inches, as a tree makes a better collar and root growth when their limbs are left on.

PLANTING

In planting, we use a "T," putting the trees down two inches deeper than they were in the nursery, with two men to dig the holes and one man to look after the "T" and trim the roots. If the roots are long or bruised or broken, cut off with a clean slanting cut. Be sure to dig the holes large enough. Place your tree with the heaviest side leaning against prevailing wind from five to seven degrees. Shovel in the earth with the trimmer, holding the tree in place, and tramping down the earth as it is thrown in, leave two or three shovelsful of earth lying loose around the tree to keep the ground from baking or drying out.

A Model Peach Orchard

This properly pruned and well cultivated Peach Orchard is the property of Messrs J. W. Smith & Sons, Winona. See accompanying article for description.

I prefer to trim the trees after they are planted, for when the ground is ready we don't want the trees lying around. When all are planted we go along and trim back to four limbs where possible, with two buds to the limb. Have the limbs well distributed over the tree and never leave the limbs so that they form a crutch.

The best varieties to plant are Yellow St. John, Leamington, Ely, Crawford, Champion, New Prolific, Elberta, Yellow Rare Ripe, Niagara, Lemon Free, Beers Smock and Smock.

We prefer a cultivated hoe crop of potatoes, tomatoes, or a crop of strawberries, but leave a good space between berries and trees for cultivation. After second year have the orchard so it can be worked both ways and keep the ground in as good condition as it would be for a hoe crop. When the trees begin to bear give lots of manure and ashes alternately, but not together. In the spring, as soon as it is dry enough, work away from trees with a disk or shallow ploughing. Harrow or disk every week or ten days until the last of July, when the earth is worked back for winter. We get the trees ready for winter before picking comes on, with the exception of water furrows, and banking around each tree about six inches deep and two feet all around the trunk of trees, which is done any spare time between picking and after the fruit is off. Oats make a good cover crop, as it grows well under the trees and makes a good growth, which holds the leaves and is easily ploughed down in the spring.

PRUNING

In trimming the young orchard, cut out all limbs that cross and thin out centres so as to throw the growth to the sides and not in the top. In mid summer thin out all limbs that cross cut back the centre main limbs to one half to throw the growth to outside limbs, which lets in the sun to ripen the wood and make the buds stronger for winter. We do not trim our bearing trees until after February, when the severe weather is past. If buds are badly hurt we do not thin much, just head back enough to let in sun and air. If buds are good, thin out and head back so as to get shape to tree and size to fruit.

I have been spraying for the past twenty years with good results. I have fourteen hundred Duchess pear trees which I sprayed three times and controlled the spot perfectly, while one tree that was missed was black with the spot. while with apples, plums, cherries and grapes it was the same story—perfect fruit when sprayed, almost unsalable when spraying was neglected.—A. W. Peart, Burlington, Ont.

I had an old orchard of Greenings, which of late years had been so wormy and scaly that I had decided to pull them out, in fact had cut out about eighty trees, but thorough spraying is bringing back early conditions, in fact, one tree one hundred years old produced twenty barrels of perfect fruit, while a five acre orchard seventeen years old in rough land that could not be sprayed did not produce a single barrel of good apples. Lime-sulphur has given the apple trees in the Niagara district a new lease of life.—L. L. Woolverton, Grimsby.

Root Pruning of Fruit Trees

Geo. W. Tebbs, Hespeler, Ont.

"IF the heart be right, then the resulting life will be pure and good," has been said often of men. It is also true in the tree. The real secret of fruitfulness lies at the root literally. Let the root be right, and there will be large fruit, beautiful to look upon, and an abundance of it.

Further, it does not always follow that if a man have a good head, his life will be productive of the most good to others. The tree may have ever so well shaped a head, but positive benefit does not necessarily follow unless it results in fruit bearing; and this comes from an abundance of fibrous rootlets.

INCREASE ROOT DEVELOPMENT

How often is root development grossly neglected? From the time the nursery stock is purchased, when only too often the tree is rammed into the ground in any old way, with its roots frequently doubled under it as though it is to develop into an acrobatic contortionist. Little care is taken of the roots, the chief source of the strength of the tree. I think sometimes that our "nurses" who dig the stock from the "nursery" forget the fact that a young tree does not have roots that run down like a carrot towards the Antipodes, but that for a distance of, say, three feet, from the stem there is a whole mat of fibrous roots.

In a hurried filling of orders these are occasionally torn away. At least, such has been my impression when I have examined them upon their arrival. It is well if there are such webs of roots around your young stock. .They will be well nourished, being near the surface, and the full influence of the air will keep a constant supply of food ready. But how may trees that are inclined to be the reverse of this be made to form a mass of roots? How may the roots be kept near the surface? The lifting and replanting once or twice will accomplish this. This operation will break the stronger roots and exuberant leaf action is checked. Beyond paring the ends of all broken roots with a sharp knife nothing more need be done. The tree is simply taken out and put back. The moving from the parent nursery to the purchaser's orchard will effect this in the first instance, and only occasionally is a second removal necessary.

To create an abundance of surface roots some people go round the town buying up surplus paving stones from an overstocked indigent corporation, and build a pavement under the tree. This is absolutely unnecessary. Mulch well, pulverize well, and you will have a soil full of air and moisture. The roots will then multiply and will naturally remain where there are so many good things to be taken advantage of.

First of all then get the soil into good condition for holding moisture through long periods of drought, and let the roots get plenty of air. If the trees have to be lifted a second time, my experience has been that showery weather in the autumn, about the time the leaves are ripe, is the best time. Begin at least three feet from the tree, and spade towards it.

Results of Rootpruning

An unproductive Duchess Apple Tree in the Orchard of Mr. G. W Tebbs, Hespeler rendered fruitful by means of rootpruning.

But what about trees that are too large to move? There are thousands of trees in this Province that are not satisfactory, and yet they are too good to be destroyed. In these cases I would advise root pruning. Make a trench round the tree about one half of the way, doing one half one year and one half the next, preferably during the "off" years of the tree or when fruit spurs are least in evidence. Root pruning is not done by a haphazard butchery of the roots with the edge of the spade. A knife or small pruning saw should be used. The growing roots are much softer, and consequently easier to cut than the branches. As far as possible make upward cuts, as it will direct the new fibres towards the surface.

Make an effort to get at the strong roots which run down into an unproductive subsoil; cut out some of them at least, as they only produce wood. The accompanying illustration shows a "Duchess" apple on my place that was absolutely unproductive, but which grew wood by the yard each year. I tried root pruning, with the result the first year after, as seen by the blossom, and a good harvest was afterwards gathered.

Value of Bees in an Orchard

J. W. Clarke, Cainsville

From my experience as a fruit grower and beekeeper I place great value on bees as a reliable means of proper fertilization of the blossoms. Some seasons we have more or less damp, muggy weather with little breeze to carry pollen. In such seasons bees have their usefulness in fertilizing fruit blooms. The undeveloped, one-sided fruit we often see in such seasons is due to imperfect fertilization.

I believe that every one growing fruit should have at least one or more hives of bees, if for no other purpose than the proper pollination of the bloom. Each orchard should have a few hives in it, as in cold or windy weather the bees do not go far from home.

PROFITABLE INVESTMENT

Not only will the bees prove a paying investment in distributing the pollen, but with very little care will make honey enough for the family and some to sell. Swarming can be controlled by ventilation and modern methods of handling.

Trees Injured by Mice

Considerable damage has been done to fruit trees during the past winter by mice. If attended to at once the injury can be much lessened. Where the injury is slight or even if the outer bark is all eaten off, if there are strips of the inside bark still left, cover with grafting wax and bank up where possible with earth to keep the bark moist and to prevent drying. The hot sun will soon destroy the life of the under bark. Where these shreds of live bark are near together, this will be all that is necessary to be done.

TREATMENT OF GIRDLED TREES

Where the bark is entirely eaten off, girdling the tree, paint the wood thoroughly with a good lead and oil paint, and as soon as the sap begins to run, cut scions and carefully insert them in the live bark at top and bottom, waxing thoroughly and tying firmly. A scion should be put in about every two or three inches around the damaged part. In such cases it is wise to cut back the top severely, as the evaporation from the top will be greater than the capacity of the scions to carry the moisture from the earth. In this way valuable trees can be saved that otherwise would be a total loss.

Prune fruit trees regularly each year.

Starting an Orchard

Fr. M. Leopold, O.C.R., La Trappe, Que.

(Continued from last issue)

HERE we have to get the trees to protect each other; so in considering all this, it is safe to say we can plant apple trees at twenty-five to thirty feet each way; cherries, fifteen to twenty feet each way; pears, twenty to twenty-five feet each way, and plums, fifteen to twenty feet each way. In Ontario, I would say, plant apple trees at forty feet each way.

CARE OF NURSERY STOCK

Unpack stock immediately upon arrival and dip the roots in liquid mud. In case stock cannot be immediately set out, prepare a place where it can be temporarily planted, taking care to cover roots thoroughly, working the soil in among the fibres. Dig generous holes and provide good soil to fill them. Do not bend the roots; cleanly cut off bruised or broken roots, and never let them dry. Dip them in mud, place them in hole, throw good soil in hole, tightly ramming it around roots after each shovelful. Leave no air pockets. After hole is filled, cover top of ground thickly with good, well-rotted stable manure as far as roots extend. Do not let manure come in contact with the roots of young trees; apply manure as a mulch. An assistant is very helpful when setting trees. Two men, or a man and a boy, can work together to good advantage.

Trees should be set in the ground a little deeper than they were set when growing in the nursery: Deep enough so that the joint between stock and scion is covered. As the tree setting progresses, it is a good plan often to "sight" the rows across from side to side, both ways, to make sure that everything is exactly straight. The eye is an excellent detector of unsuspected crooks in rows. In exposed situations or in windy localities, it is a good plan to incline the newly-set tree slightly toward the point where the strong winds come from. The trees will straighten as they grow.

PRUNING

The newly-set tree must be pruned. As it stood in the nursery there was approximately a balance between the top and the roots, the latter being just about enough, under the condition of that soil, to supply what moisture and nourishment the leaves and branches needed. Evidently, if half of the roots were suddenly removed, this equilibrium would be destroyed, and each leaf would show its distress at the decreased sap pressure, by wilting, and the weaker ones would probably die.

Now, this is essentially the condition of the nursery tree. No matter how carefully it was dug, many of its fine feeding roots are sure to have broken off, or have dried up; and until it can re-establish its relations with the soil, and put out new roots to take the place of those destroyed, it is totally unable to support and nourish the original amount of top. The fine root hairs, which appear like fuzz near the tips of the smaller roots and do most of the absorbing for the roots, dry out almost instantly on exposure to the air, and are parctically all destroyed in transplanting. It takes some time to form these anew, and if the whole top is left to "leaf out" during the process, evaporation from so many points will result in disastrous drying of the whole tree. This can be avoided by cutting back the top to correspond with the roots, thus diminishing the evaporation to the point where they can supply the loss.

Choose three, four or five limbs to form the future frame work of the tree. These should come out from the trunk in different directions, distributed as evenly as possible; and if feasible no two branches should come out exactly opposite each other. Cut the chosen limbs back to six or eight inches, remove all others. Cut to a bud, making a sloping cut.

If the ground around your fruit trees is not kept constantly cultivated, the trees should be heavily mulched all summer. Straw or strawy manure is a good mulch. Newly-set trees have no depth of root and dry out very rapidly.

An Old Tree Showing the Result of Neglect.

The lower limbs should have been left on. Wounds from pruning and other causes should have been painted over and all cavities filled with cement.

Neglected Trees

A. McNeil, Ottawa

I have visited many hundreds of orchards, old and young, and do not recall ever having seen a dozen dead or dying trees that were in this condition as the result of old age. Accidents, neglect, mistakes in pruning and injuries of various sorts, in nearly all cases preventable, have been the cause. The above illustration is an example. The tree was formed with a very sharp crotch near the ground, the lower limbs having been destroyed. The bark was injured on the left hand limb; the result of this was that the wood was left naked. The tree evidently struggled to repair the wound, but the injury was so exposed that the bark never formed over it. The pickers, no doubt, travelled up and down on the tender growth that was being made about this wound; the pruners found it a convenient way into the tree; canker spores found a congenial lodging place here, and, in the meantime, the naked wood was exposed to the vicissitudes of sunshine and rain, frost and snow. It soon began to decay, and the decay developed up and down, and has rapidly overtaken the newer growth on the outside, weakening the limb so that in a year or two it will fall entirely away.

Higher up on the right hand limb is a wound caused by sawing off a large limb. Nothing was done to protect the exposed wood, and, as a consequence, decay set in. This extended up and down the tree, so that the right hand limb is only a mere shell now, and a heavy wind will likely break it near the ground.

Both these injuries could have been readily prevented. If the wound on the

left hand side had been carefully painted with pure linseed oil and white lead, on the same plan as the clap-boards of a house are painted, it could have been preserved so that rot would not have affected the wood. Of course, mechanical means would have to be resorted to, to prevent the pickers and pruners from stepping upon this part of the tree until it had been thoroughly healed over. It is by no means a good practice to allow pickers to wear anything but rubber boots when they are permitted to climb upon the trees. Of course, in recently set orchards the trees are headed low, so that little or no climbing is necesary either for pruning or picking.

The injury on the right hand side might easily have been prevented, by simply painting the wood thoroughly and keeping it painted until it had grown over. This might take from five to ten years in the case of such a large limb: but no harm will come if the wound is always kept well covered with paint.

Notes on Small Fruits

Raspberries thrive best on sandy loams, with a damp but not wet subsoil. The rows should be from four and a half to five and a half feet apart, according to the habit of growth of the variety. They may be planted either in hedge-row form or in hills. Many successful growers are using the latter, making the hills three to three and a half feet apart.

In setting out a new plantation in a solid row, the young canes should be placed fifteen to eighteen inches apart; if in hills, plant two or three canes to ensure setting. The hill system saves a great deal of hand labor, as then you may cultivate both ways.

VARIETIES

At the start a great deal of work is saved by ploughing out a deep furrow for the plants. The three best varieties of red berries are the Marlboro, Herbert, and Cuthbert. The former being a light grower, the second a medium one, and the latter heavy. They also ripen in the order given.

At the annual pruning remove the dead and weak canes, leaving eight or ten to the yard of the best ones in a narrow row. Cut back the tips according to the variety and growth. Cutting off the tops is an advantage when the young suckers reach a height of three and a half or four feet in the summer. It makes a stouter tree-like cane, which throws out lateral branches for fruiting. We should plough towards the rows in the fall for drainage and cultivate away in the spring; then keep the cultivator going until the crop is ripe.

BLACK CAPS

Smith's Giant, Kansas, Older and Hilborn are among the best black caps. They are propagated by tips rather than suckers, are handled in a similar way to red ones, should be grown in hills, and require cutting back more severely.

CURRANTS

Currants do well on light clay or heavy gravel loams. They should be planted about six feet apart each way, and trained in bush form from several shoots, not like a tree. Leading varieties are: Red—Cherry, Fay, Victoria, Wilder, North Star, and Prince Albert. North Star ripens late and Prince Albert very late; the others from early to medium. Black—Lee, Naples, Saunders, Champion. White—Grape and Imperial.

At the annual pruning thin out the bushes to eight or nine of the best of the older shoots, cutting away the very oldest wood year after year. Currants should also be finely cultivated until the fruit is ripe.

Both raspberries and currants should be fertilized with rich stable manure at least every other year. They will give a liberal response to good feeding. In the above fruits, when properly managed, there is a very fair margin of profit.—P.

The Strawberry Bed

E. B. Stevenson, Guelph

The strawberry, when we have a good market for it is a very profitable crop to raise. In growing the strawberry the varieties and methods pursued are largely a local matter, and so it would be difficult to lay down hard and fast rules of methods that we could take as being correct, or the variety that would be the best to grow. The soil, the man and the market are largely responsible for the method and for a profitable crop of strawberries. Each grower should have a trial plot and grow a few of each kind on his own ground, discarding the kinds that prove unprofitable for his location.

SOIL PREPARATION

I have never had my ground too rich for strawberries. I plant roots and manure well for the two years preceding the strawberry year, then give an extra coat of well rotted stable manure, well worked in before planting.

I plant rows three feet apart and two feet in the row. When planting is over I go over the ground with a fine toothed cultivator and keep this up about once a week through the growing season. After the plants have stopped growing and the ground is frozen in the fall, I cover the whole bed with strawy manure to a depth of two or three inches; in the spring I rake this into the paths for a mulch to keep the berries clean. I then spray with lime and sulphur, to kill the rust that may appear before the blossoms open, and again just after the fruit has set. I grow the plants for fruit in the narrow rows as I find I get finer fruit than in the wide matted row.

NEW VARIETIES

There are some very promising new varieties being placed before the public; others on trial and not yet offered for sale. I have one sent me by Mr. Howard of Massachusetts, without name as yet; came to me as "No. 17." I have fruited it two years, and was delighted with it. The plant is vigorous and healthy, has a good root system, and produces large heart-shaped berries of good color and excellent quality. The blossom is staminate and the fruit firm, and will make a good commercial variety.

Nine Year Old Irrigated Orchard
The Property of Mr. Martin Burrill, M.P., Grand Forks, B. C.

Orchard Pruning and Cultivation

W. H. Gibson, Newcastle

(Continued from last issue)

I KEEP six feet on each side of the trees either cultivated or planted to a cultivated crop such as roots or corn. The land between is worked in a general farm rotation of corn, oats, wheat and clover.

As soon as the trees require the whole space, which will be at about ten years from the time of planting, I seed down the cultivated strip of about twelve feet and cultivate the centre strip. I plow as early as possible in the spring, harrow every week or ten days until the latter part of May, and then sow the cover crop, instead of doing, as many advise, continuing the cultivation until July or August. By stopping cultivation at this time, I get a better color on the apples, the wood is ripened earlier, and by sowing the cover crop at that time a much better catch of clover is assured at that time of year than later in the season. The greatest advantage of this system is that it is an almost entire preventative of winter killing. I have noticed that in the majority of cases where there has been loss from this cause the trees have been cultivated late in the season.

The grass strip is mowed each year and allowed to lie on the ground. The leaving of this strip in grass makes the cultivation very much easier and does away with the necessity of using extension harrows. I bought one several years ago and have never attached the extension wings as yet. Almost every plant is used as a cover crop in this district. The most common are buckwheat, oats, rape, barley, hairy vetch and clover, or a combination of all five. I prefer clover. The best manure for an apple orchard is a clover sod turned under. By sowing in May before the dry weather comes, there is very little danger of missing a catch.

THE TARIFF

The apple growers in this district are well satisfied with the proposed tariff changes, as they think that they stand to make more than they will lose, for the United States buyers will come over and buy free on board cars here. We may lose some of the western trade, which has grown from one thousand five hundred barrels in 1900, to two hundred and fifty thousand barrels in 1910, but I think our gain by obtaining an entrance into the United States markets will much more than offset the possible loss in the western markets, but rather than see the peach and vegetable growers lose, I would say, let the duty remain as it is.

Build suitable bird houses to entice insectivorous birds to the orchard.

A Flower Garden at New Lowell, Ont.

The above illustrates an experiment conducted by Mr. A. T. Stone, of Pentanguishene, in the culture of asters stocks, verbenas, and other flowers. The plot was prepared as follows: In the fall a liberal quantity of leaves and fresh horse manure was applied and spaded under, and the earth left in a rough state until spring. As soon as the soil was ready to work a compost, made as follows, was applied—One bushel of hen manure, one bushel of hardwood ashes, quarter bushel air slack lime, quarter lb. bone meal. Where the soil is poor the above amount of compost is usually sufficient for every twenty-five feet square of land. The soil should be prepared as above advised. A clay loam soil will give best results where these cultural directions are complied with. Do not transplant plants until two weeks after the application of the compost, but keep the ground well worked. Transplant the asters in rows running north and south in a sunny position about fifteen inches apart in the rows and two feet between the rows. Keep well cultivated to keep out the weeds and to retain the moisture. Water only in rare cases. Follow these directions, planting first quality aster plants of the choicest varieties, and a bountiful display of rare beauty will be yours.

Culture of the Sweet Pea

H. J. Edwards, Winnipeg, Man.

The reason that we so seldom see the sweet pea at its best in this province can be attributed chiefly to late sowing and over seeding. This paper is written for the purpose of advocating exactly the opposite, i.e., "Early sowing and sparse seeding."

PLANT FAR APART

In planting, north to south is the best direction, and an open space away from trees and buildings is most desirable. There should be at least four feet between the rows, five feet would be better, for the purpose of attending to the plants.

PLANT EARLY

As soon as the frost is out of the ground to a depth of 3 or 4 inches, the seed should be sown, making a double row, six inches between the rows, the seed being planted four inches apart, and one and a half inches deep. On light, sandy soil the seed should be planted another inch deeper.

Sticks should be provided early for the plants to climb.. When these are not obtainable, wire netting nailed on to good stout posts will do nearly as well. During the growing season, the surface of the soil should be kept loose, and all weeds destroyed, care being taken not to disturb the roots of the sweet peas. In late spring and early summer, keep a sharp lookout for that abominable pest, the cut worm. He can usually be found by digging four inches around the plant he has destroyed.

The seed catalogues sent out by the various seedsmen contain a fairly comprehensive list of sweet peas, with a full description as regards type and color. It is generally a matter of personal choice as to which are the best colors. The latest list available mentions over seven hundred different named varieties, but as a great many are included in a list of "too much alike" varieties (some have nearly twenty names) it would be unwise to particularize in a paper of this nature. However, there is one variety which might be mentioned, and that is Coccinea. The seed of this variety is as a rule fine and plump, and would compare favorably with the finest samples of seed grown. Some years not one seed from a packet will germinate. This is not the fault of the seedsman or grower, but is due to a peculiar trait in the variety itself.

DON'TS FOR AMATEURS

The following "Don'ts for Amateur Gardeners" are taken from the special sweet pea number of The Gardener of Jan. 30th, 1909, and anyone who wishes for the best results should bear them in mind:

Don't forget the deeper (in reason) the soil is cultivated the more vigorous will be the plants.

Don't imagine that you can grow sweet peas well on the same plot of ground indefinitely.

Don't forget that early sowing is half the battle in the successful cultivation of the sweet pea.

Don't ignore the fact that it is possible to grow sweet peas with flower stems eighteen or twenty inches long.

What Amateurs Can Do in April

EVERY amateur should have a hot bed, while boxes set in a sunny window may be used with fair results, nothing gives the satisfaction that a good hot bed does. By using a hot bed to start young plants, a person can have cabbages, tomatoes, lettuce, cauliflower and other appetizing vegetables from two weeks to a month earlier than his neighbors who wait for the sun to sprout their garden seeds. Build the hot bed in a shelter of a fence to protect it from north and west winds. Dig a pit six by fifteen feet and two feet deep, and fit over it a frame made of boards, using two inch stuff for the longer sides. Make one side of the frame six inches higher than the other and slant it toward the south. Fill the pit with well tramped stable manure which heats rapidly. After the violent action has subsided, cover the manure with six inches of rich garden soil, which should be well raked before seeds are planted. Bank manure around the frame, which can be covered by five three by six feet glass sashes. Cover the hot bed with boards or blankets on cold nights. Give the plants plenty of fresh air on warm days by lifting the sashes. Sprinkle the bed in the morning when it needs watering. The bed should be allowed to lay for about a week before seeds are planted to allow the first heat to pass off, when it will cool down to an even temperature; always allow for a little ventilation to carry off the hot steam. A layer of finely sifted coal ashes spread on top of the manure and before the soil is filled in will serve to hold the heat.

Seeds of annuals should be sown in a light sandy soil in shallow boxes placed in the hot bed. Very fine seeds do not need to be covered; sow on top of the soil. The soil should be moist, and after the seeds are sown press them in with some flat object. Asters, balsams, and zennias require to be covered in the soil at about the depth of the size of the seed. A good rule in sowing all kinds of seeds is to have just about the same thickness of soil over the seed as the seed is high. Large seeds may be planted deeper. Plant in depth from one to four times the diameter of the seeds. It is a good plan to darken the surface with newspapers or some other covering to get the seed to germinate quickly. As soon as the shoots begin to show the covering must be removed. Ventilation at this period of growth should be closely watched.

Now is the time to strike cuttings of coleus, ageratum, geranium and lobelias; these will root in about ten days. As soon as they are well rooted they should be transplanted into small pots in light sandy soil and placed back in the hot bed again.

Canna roots should be divided and cleaned and placed in shallow boxes filled with sandy soil; water slightly, and expose to the light. Dahlias should also be divided now for summer growth. Mignonette, annual wall flowers, snapdragons, and sweet peas may be sown out doors as soon as the ground is dry enough to work. Plant or transplant perennials, such as peonies, diclytra and German Iris, as early as possible.

Do not sow nasturtium seed too early, as the young plants are liable to be injured by late frosts . Seedlings of annuals started inside should be transplanted when the second pair of seed leaves are in course of development.

Tulips in beds should be uncovered in order that they may get all the sun and light possible. As soon as the frost is out of the ground and the weather fairly dry, a little lawn grass seed should be sown on the bare spots in the lawn, and the whole lawn rolled. A lawn roller soon pays for itself in the satisfaction obtained by having a smooth, velvety sward. A liberal dressing of commercial fertilizer, such as is known in the trade as a 4-8-8 goods—four per cent. of nitrogen, eight of phosphoric acid, and eight of potash—should be given. The results of this application will be seen all summer, even in the dryest season, in the deep green color of the grass. Bone meal and wood ashes make a good lawn fertilizer mixed in the proportion of one part of bone meal to four or five of wood ashes, but is rather slow for spring operation. This mixture would be much improved by the addition of two or three quarts of nitrate of soda to a bushel of the mixture. The nitrate of soda should be finely pulverized and the mixture applied immediately upon the addition of the soda. Trim the edge of the grass off evenly. There is nothing that adds so much to the appearance of walks and driveways as clean, well kept edgings.

Pruning should be done now that danger from severe frosts is about over. Hardy roses should have all weak wood cut out and strong shoots shortened back to within six inches of the stock. Fork over the rose beds after pruning. A little fertilizer, bone meal or rotten stable manure, put around rose bushes or flowering shrubs will help them materially.

THE VEGETABLE GARDEN

If seeds of early cabbage were sown in the hot bed last month they will be ready to transplant about the end of April or early May. Seeds of late varieties may be sown in the open ground about the end of May and transplanted about the first of July. Sow early varieties of radish as soon as possible, and at intervals of two weeks for a succession. Do not forget a few early turnips.

One of the first pieces of work to be attended to in the spring is to take the covering of manure off the asparagus bed and fork the soil over lightly around and about the plants. If manure was not applied last fall a light application may be given now and worked in. Every garden should have an asparagus bed; it is the earliest and most acceptable vegetable. A bed may be started by sowing seed, but the best way is to secure two-year-old plants. Plant them eight inches apart in rows three feet apart. Have the asparagus bed in deep, rich land, where the water will not stand in winter or spring.

Among the first vegetable crops to sow or plant are peas, spinach, lettuce, parsnips, parsley and onions. Always

Bed of Lilies in the Garden of the Late Senator Sir James Gowan, Barrie, Ont

Mr. Richard Bidwell the gardener, gives the following information regarding their culture: The lilies have been in the garden for the last twenty-five years. In name they are the Annunciation, very tall, and waxen in bloom. The beds are always made rich with stable manure. The plan is to move the roots and separate them every three years from one bed to another. This is done as early as the 15th of August. The roots are planted six inches deep, and the soil mulched for the winter. The carnations are raised from seed and are of several colors. They also pass the winter with the lilies. The photo I sent you represented one of the most artistic and lovely flower beds I have ever seen.—Fred Brooks, Barrie.

have the seed bed well prepared. A little frost or snow after these seeds are in the ground will not hurt them. A week or two later beans, beets, carrots and salsify may be sown. Never sow when the ground is wet and soggy.

Many gardeners grow the same plants every year. Buy some new plants this season. Among vegetables not grown are endive, Chinese mustard and cress. Plant some Brussels sprouts. Kohl-rabi is also good for a change.

IN THE FRUIT GARDEN

All pruning of both small and tree fruits should be finished this month. If you have not already done so finish the work on your currant and gooseberry bushes, as they break into bud early.

If you have any mummied fruits hanging upon the peach and plum trees, remove them at once and burn. Spray the trees with the spray solution for dormant trees of lime sulphur . Cut out all black knot in your plum and cherry trees. Examine the peach and cherry trees for the borers. These may be found by looking for the little mound of sawdust which is usually seen at about the level of the ground, or lump of gummy substance higher up on plum and cherry trees. Cut the borers out with a sharp knife or crush them by forcing a wire into boring. Look over the trees for egg masses of the tent caterpillar, also for the nests of tussock moth and the dreaded gipsy moth and brown tail moth.

As soon as the snow is off examine the trees for injury from mice or rabbits. Where the injury is slight cover with grafting wax, or if the inside bark is not eaten through cover up with earth to keep the moisture in, and the tree will soon recover. If the tree is entirely girdled put in several scions, waxing carefully and tying carefully. In this case it is well to cut the tree severely in order to prevent too rapid evaporation.

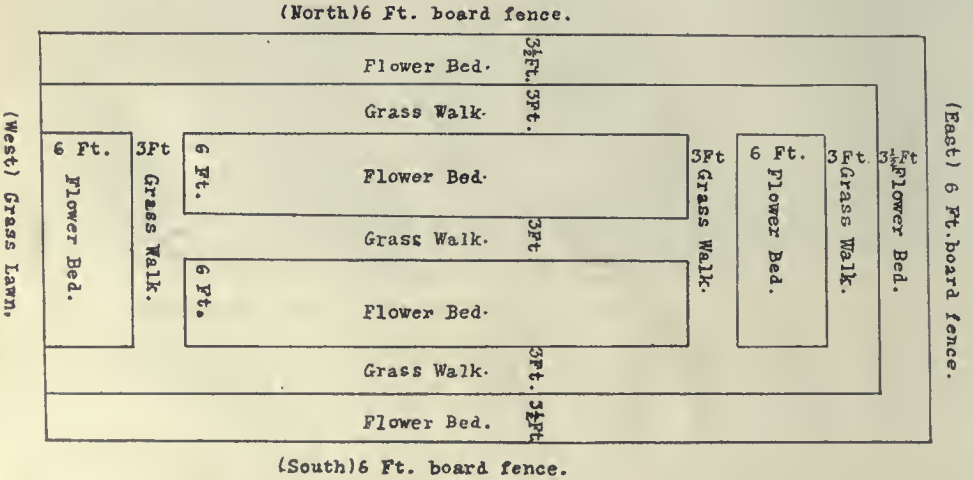
The mulch on the strawberry beds should now be taken off and left between the rows to conserve the moisture, keep down the weeds, and also keep the fruit from the soil. Dig out and remove all perennial weeds, such as dandelion, dock twitch grass, as soon as they appear. With all small fruits it is a mistake to plant before the soil is well manured and worked.

Have you a strawberry patch? Do you grow raspberries or currants? Were your gooseberries a success last season? Write out your experience with either vegetable or flower gardening, and send it to THE CANADIAN HORTICULTURIST. If you have photographs illustrating your garden all the better—send them along. The readers of this paper will be interested in reading of your success or failure, and in turn your account will stimulate others to write. We want our readers to feel that they are part of the Magazine, and that all are interested in each other.

The Planting of an Amateur's Flower Garden

"CAN you give me some suggestions as to how I can lay out my flower garden to the best advantage" is a question that THE CANADIAN HORTICULTURIST receives frequently from amateur flower growers in all parts of Canada. The following article by Mr. Roderick Cameron, Superintendent of Parks, Toronto, describing what can be grown in a small city garden is really an answer to one of our subscribers in Hamilton who asked for suggestions as to how to lay out and plant his flower garden, a diagram of which is furnished by him showing how he planned to lay out the beds and walks as here published. By printing this article we hope that many of our readers will obtain hints that may help them.

I would first of all fasten chicken netting lengthwise, round the garden fence on to the posts of the fence. Presuming that the posts are six or eight inches through this would leave a space between the net and the fence proper of six or eight inches, or the thickness of the posts.



Forcing Lilacs in Winter

These branches were cut from the bush and placed in water, in the temperature of an ordinary living room.—Photograph sent by Mrs. W. F. Hardy, Oakwood. Ont.

On the north fence, which would be facing the sun, I would plant tomatoes to be trained up between the net and the fence. If trimmed and tied nicely they will cover the fence and look as well as any vines, and be useful to those who like this vegetable or fruit. If the intention is to grow nothing but flowers, then I would train up honeysuckle, trumpet vines, or clematis, as they will stand the hot rays of the sun better than most vines, and in such a situation are free from insects.

PLACE FOR ROSES

Climbing roses may be planted on the east and west sides of the fence, such as Crimson Rambler, Dorothy Perkins, or Pink Rambler. Be sure to have one of Tousendschon, or Thousand Beauties, a grand pillar rose. If the west side is much shaded I would train up by pruning some plants of Ruby Castle Currant. They look well, and will supply the table with late fruit.

BORDERS AND BEDS

As the south side is the most shaded, I would plant my dahlias there, where they will be cooler and freer from insects. In between the dahlias may be planted gladiolus, and various kinds of lilies, and the border edged with alyssum saxitile or the arabis albida, and the double flore plenus. Plant them time about in the row, as the double one blooms after the single one is done. This will prolong the blooming season of the row. Early Kidney beans, lettuce or radishes may be grown between the dahlias if desired, and be off before the dahlias require the room.

The north border, since it faces the sun will be very hot. This, and the reflection of the sun, causes insects, such as red spider and thrips, to thrive. Do not plant roses or sweet peas here. A choice may be made of any of the follow-

ing named plants, all of which are suitable. I will give the height, color and time of blooming:

PLANT DESCRIPTIONS

Sylphium laciniatum, compass plant, 6 to 8 feet, yellow, August and September.

Lythrum Salicarium (Purple Loosestrife), 5 to 6 feet, July and August.

Liatris picnostachia (blazing star), 4 to 5 feet, blue, July and August.

Penstemon barbatus Torreyi (Scarlet Beard-Tongue), 3 to 4 feet, July to fall.

Liatris scariosa, 3 to 4 feet, blue, July and August.

Saxifraga imbrosa (London Pride), 12 to 15 inches, pink, June.

Statice latifolia(Sea Lavender), 2 feet, blue, July to fall.

Statice Besseriana, 2 feet, blue, July to fall.

Thermopsis Caroliniana (False Lupine), 4 to 5 feet, yellow, July.

Delphenium hybridum (Larkspur), 4 to 6 feet, in many colors.

Papaver nudicauly (Iceland Poppy), 18 inches, mostly shades of yellow, all summer if the seeds are kept off them.

Veronica spicata rosea (Rose Speedwell), 2 feet, all summer.

Veronica spicata (Speedwell), 2 feet, blue, all summer.

Veronica spicata alba (White Speedwell), 18 inches, July and August.

Veronica incana (Hoary Speedwell) 18 inches, lavender colored blooms, July, distinct foliage.

Dianthus hybridus, or Scotch pinks, 15 inches high, in all shades, June and July.

PLANTS FOR AN EAST BORDER

The east border and any of the beds may be planted with the following plants:

Erysimum alpinum (Alpine Wallflower), 8 inches, yellow, very sweet, May and June.

Gypsophila paniculata, 2 to 3 feet white, July and August.

Heuchera Sanguinea ,2 feet, June and August.

Asperula hexaphylla (Slender Woodruff), 3 feet, white, July and August.

Agrostemma Coronaria (Rose Champion), 3 feet, rose to white, all summer.

Boltonia latisgnana, 3 to 4 feet, pinkish, July to fall.

Campanula persicifolia humosa, 2 to 3 feet, semi-double blue, large, July.

Campanula persicifolia moorhemi, 2 to 3 feet, double white, July.

Corcopsis lanceolata grandiflora, 3 feet, yellow, July to fall.

The Chasta daisy, 2 to 3 feet, white, all summer.

Cerastium Bosseri will make a good edging plant for any of these borders. Add to the above list a few of the perennial Phlox, and there should be no trouble in any person planting with good taste to have a first class garden. A few annuals may be added.

TULIPS AND NARCISSUS

There is no reason why this garden and many other situated similarly should not be beautiful in the spring as well as in the summer and fall. There is no scarcity of spring flowering bulbs that are very hardy for this purpose, and they may be left undisturbed for three years if planted properly. They should be planted between the perennials. The perennials to be wide enough apart not to interfere with them. I would plant Darwin Tulips towards the back of the border, as they grow to three feet high, and have very beautiful self colors, and can be got in twenty-five varieties named. I would plant some of the ordinary tulips beside these to bloom early, as the Darwins do not bloom until about the 24th of May generally. The Darwins last well on to the end of June.

In case a few names may be desired I here give them as follows:

Kaiser Kroon, 2 feet, red and yellow bloom, 10th May.

Potabaker, 2 feet, yellow, 10th May.

Prosapin, 18 inches, magenta, very good, 10th May.

Vermillion brilliant, 12 inches, dark red, dwarf to edge.

Tournsol, double, 12 inches, yellow and red, 15th May.

Vuurback, 12 inches, the best double red, 14th May.

Tulip Joosie Van Vondel, 18 inches, is the best single white, 14th May.

The following are the Darwins:

Tulipa Flambean, brick red, June.

T. Dream, purplish, T. Pierre Lotti, reddish purple, T. Popano, pink color, T. Philip de Comminet, almost black, T. The Sultan, black, T. Wm. Goldring, dark red. Next to the tulips may be planted a few bulbs of each of the following narcissus, which are in bloom with these Tulips:

Narcissus Von Sion, 12 to 15 inches, double yellow, 15th April.

Nar. Sir Watkin, yellow, large, 15th May.

Nar. Emperor, 15 inches, yellow, 14th May to June.

Na . Glory of Leiden, 15 inches. one of the best, yellow, 15th May.

Nar. Poeticus, 18 inches, white 14th May.

OTHER VARIETIES

We have also a number of Scillas and muscarias beautiful for the edging. A few of the best are as follows:

Scilla Nutaus, blue, 12 to 15 inches, 1st June, Bluebells.

Scilla Nutaus Alba, 12 to 15 inches, 1st June.

Scilla Siberica squills, 8 inches, the earliest, blue, May.

The muscarias grow to about the same size as the scillas, and are very pretty in their season.

Muscaria racemosum (starch hyacinth), 10 inches, May.

Muscaria gussoni, 10 inches, May.

Muscaria Conicum (Heavenly Blue), 10 inches.

Muscaria paradoxum from Cascasium. This is the largest one, 12 inches, dark blue, May.

There is no limit to the number of plants that can be grown in a small garden if the owner would only get a clump of each. To the above list may be added several of the Alliums, Allium Azureum, 12 to 15 inches, blue, June; Astrowskianum of Turkestan is the best, 2 to 3 feet, blue, June.

PERENNIAL PLANTS

The perennial plants can be procured from any reliable nurseryman for about the price of geraniums that perish every

Tulip Beds in Major Hill Park, Ottawa

Bed in foreground shows where two thousand bulbs of the Pax Alba tulip have been almost totally destroyed by the Millipedes. The other two varieties escaped fairly well which is convincing proof that they have a preference for some varieties over others.

year . The bulbs can be procured from almost any seedsman for a small price. I plant all my bulbs deep . Tulips about a foot deep, the smaller bulbs in proportion to their size. All will do much better if the hose is not used continually on the soil. Mulch well instead of using so much water.

Take them up, select, and replant every third year. Keep your narcissus well down also, say about 8 to 10 inches. This deep planting will allow one to stir the soil, fork over and manure. Before beginning to plant put the soil in good shape, trench it two spade deep, and turn into it all the manure you can. If the soil is light use all the wood ashes and cow manure you can get.

If the soil is heavy use horse manure, some lime, leaf mould, and always use a mulch of fine manure or leaf mould during the summer, to prevent heavy soil from baking on the surface; it keeps the roots cool and moist, which is much better than using hose so freely, as we often see done.

A Year's Work in a Calgary Flower Garden*

In this paper I will merely give a record of my successes and failures during the past year in gardening work under conditions that were somewhat new to me. For my display of annuals, I depended mainly on those old and tried favorites, which invariably give satisfaction here—Asters, Stocks, Verbenas, Petunias and Phlox. The varieties of asters I grew were "Queen of the Market" and "Comet," in various colors. These were sown under glass the last week in March, transplanted once inside, and then into the open borders the first week in June. Queen of the Market came into flower two weeks earlier than the Comet, but was inferior both as regards size of bloom, intensity and clearness of color, and decorative value generally. It is six or nine inches shorter than the other variety, and should, therefore, be kept nearer the front of the border. I grew two varieties of petunias—the ordinary fringed variety and "Giant of California." The latter produces enormous blooms, but is not nearly so floriferous as the commoner kind. If I desired to secure a brilliant display of color in my garden, and was confined to one kind of flower, I think I should select the petunia. For vigor and flowering qualities it is by far the best annual I have grown in Calgary. The ordinary double German ten-weeks stock was the kind I grew, and this was raised under glass in the same manner, but owing to the fact that it germinates and grows more rapidly, I did not sow this till the second week in April.

*Extract from a paper read by W. R. Reader before the Calgary Horticultural Society.

ADVISE THE PURCHASE OF PLANTS

I would strongly advise the purchasing of plants, by which means the garden will be bright by the beginning of July. By sowing in the open, without taking into consideration the risk of late frost destroying the seedlings, one cannot reasonably expect to see much flower until the end of that month.

SWEET PEAS

I sowed Sweet Peas in the open border the first week in April. I also sowed under glass about the same date, in long boxes three inches wide and three inches deep, made of ordinary laths. When ready for planting out, I prepared drills as for sowing, removed the laths from the bottom of the box, and deposited the whole contents of box in the prepared trench. In this way there was no root disturbance, and the peas treated in this manner flowered much earlier and were altogether better than those sown directly in the ground.

Easter Flowers

Plant Asters Early

C. Mortimer Bezzo

Flower growers should place their orders for aster plants with their respective dealers at as early a date as possible. Many people defer ordering until June, which is a great mistake. To get the best possible results from asters, especially the medium and late varieties, seed should be started in a cold frame as early in the spring as the frame can be brought into use. The reason for this is as follows. The blooming period for asters ranges from August 1st to the last of September, according to the variety; and each variety will bloom pretty close to its respective season, regardless of the date on which the seed was sown.

To illustrate, the writer conducted a series of experiments of which the following is typical. I planted seed of one variety on April 15, May 15 and June 15, of the same year, and under the same conditions, except as to date. Now, where there was a month between each sowing, there were only a few days between the dates of blooming; but the difference in the quality of the bloom was great. The early ones had had a chance to become vigorous and robust before the blooming period arrived, consequently were able to produce much better bloom.

If growers of plants sow seed early, the plants are much too large to send out if delayed until the middle of June. If orders are placed early the plants may be sent out when at the best size for transplanting, and the results to both grower and planter will be much more satisfactory.

Remedies for Millipedes

Millipedes, or thousand legged worms, have caused much injury to the tulip beds on Parliament Hill and Major's Hill, Ottawa; and as over one hundred and fifty thousand bulbs are bedded each year it becomes a very serious matter. Mr. Thos. Davis, the florist, states that he has been successful in keeping them well under control by an application of one and a half pounds of Vaporite to each eight square yards, together with a liberal dressing of wood ashes. Mr. Fred Adams, Toronto, advises the mixture of sugar, bran, and just enough Paris green to color the same.

Mr. C. Gordon Hewitt, Dominion Entomologist, has the following to say on this subject:

"With regard to fertilizers as remedies for these creatures, frequent light dressings of nitrate of soda have been recommended. Good results have sometimes been had by mixing in the soil some tobacco dust or giving the soil a good soaking with kerosene emulsion. The millipedes can also be trapped by leaving about slices of mangel, potato, etc. These should be collected in the morning and the millipedes destroyed."

It is generally supposed that commercial fertilizers are obnoxious to earth worms and insects of different kinds. Many vegetable gardeners have obtained good results from an application of kainit. The reason that kainit gives better results as an insecticide than the more concentrated potash salts is due to its impurities, which are chiefly salts of sodium and magnesium. We would recommend that experiments be conducted with a fertilizer mixed in the proportion of four parts of nitrate of soda, five parts acid phosphate, and eight parts kainit. These materials should be mixed at the time of application, as the materials will form a sticky mass if left in combination for any length of time.

Liberal feeding is the best antidote for weeds in the lawn. Moisture and plenty of plant food will push up a growth of grass that will smother all kinds of weeds.

The Cultivation of the Canna

Frank Wise, Peterboro

THE cultivation of the canna is much easier than most people imagine. In the first place you procure your tubers from your seedsman, or better still, the plants from your florist. If the former, take a box and place in the bottom some rough soil such as decayed leaves and sod about two inches deep. Over this put a covering of coarse sand, on which place your tubers two or three inches apart, and cover with a mixture of sand and rough soil to the depth of two inches.

WATERING

Water thoroughly with warm water and place in a warm place in the house if you have not a hotbed or greenhouse. Do not water again until thoroughly dry, as this is where a great many failures occur through the tuber rotting instead of starting into growth, which should be in the course of a week or ten days. When the plants are three or four inches high, and are making the first leaf, they will have formed a good root, and can be potted in four or five inch pots in two-thirds good loam and one-third rotten manure, and if possible placed in a gentle bottom heat and watered with warm water, as cold water gives a chill which is detrimental to rapid growth.

If thorough watering is given it will be a week or ten days before more is needed, then water as before. Water should be carefully applied, as too much moisture in the hotbed will cause too rapid fermentation and the heat is soon lost.

PLANTING OUT

Do not plant out into your beds until the first week in June, when you must enrich your soil by digging in three or four inches of good rotten manure. I plant my cannas two feet apart and leave a little bay or hollow around the plant, which I fill up with water; then I leave them for a few days to themselves. By this time they have become established.

I then take a good fertilizer and place in the bay that was left for the water and hoe around the plant, and place the sprinkler beside the bed and give a thorough watering. This I seldom do more than once a week, as I find you get better results from your flowers, which, if watered too often, become soft and are more easily damaged by the wind and heavy rains. It will help the growth of your plants if you hoe among them once a week. By following the above cultural directions you cannot fail to have good success.

After the season is over and the first frost has spoiled the plants, cut them off two or three inches from the ground, dig them up with all the earth that will hang to them, and place them in a warm, dry corner of your cellar. Water them once or twice during the winter, taking care that they do not dry out too much. On about the first week in March or earlier you can cut up the clumps, taking the strongest eyes, and start again.

A Bed of Cannas in Little Lake Cemetery

This beautiful bed of cannas was designed by Mr. Frank Wise, Superintendent of the Little Lake Cemetery, Peterboro. The bed is thirty feet in diameter and composed of three varieties—Alphonse Bouvier, Beaute Portviene, and Queen Charlotte—and bordered with a snowy growing red-foliaged Achoranthus.

Window Boxes in Early Spring

R.L. Canning, Earlscourt, Ont.

We are all pleased in summer time to see our window boxes look well and pretty with their long trailers and deep green leaves. Why not let us try and have some beauty in spring so as to help nature as she is bursting into bud and leaf after her long winter's sleep? When we have done with our boxes for the winter and they are taken down, why not plant them with bulbs?

Either take away the old soil or top-dress them; a bulb will not require very rich soil, as the bulb is rich in food itself. Plant a row of tulips at the back, hyacinths in the centre and crocus in front. Those who like narcissus daffodils, or any other bulb, can have their choice, for their names and varieties are legion.

The boxes can be brought out in March from their winter quarters. They can be top-dressed with moss or cocoanut fibre or even coal ashes, which will keep them cool and retentive of moisture. Where means and space will permit, a succession of blooms can be supplied by having pot plants take the place of those which were planted in the boxes. A cold frame and a little attention is about all that is needed.

When the bulbs are over, they can be taken out and the pot plants placed in their stead, thus ensuring a steady supply right through to the summer bedding. As the nights get warmer, a fine supply can be maintained and at a small cost. Primulas, cinerarias, spireas, and deutzias can be placed in the boxes by being placed in the pots as suggested.

Spring Care of Flower Beds

The protection should be taken off flower beds about the first or second week in April or after the weather has begun to get warm. Remove only a part of the covering at a time, the wet heavy part underneath first, replacing the drier, lighter part back over the bulbs for a week or so until the weather has become quite settled and warm.

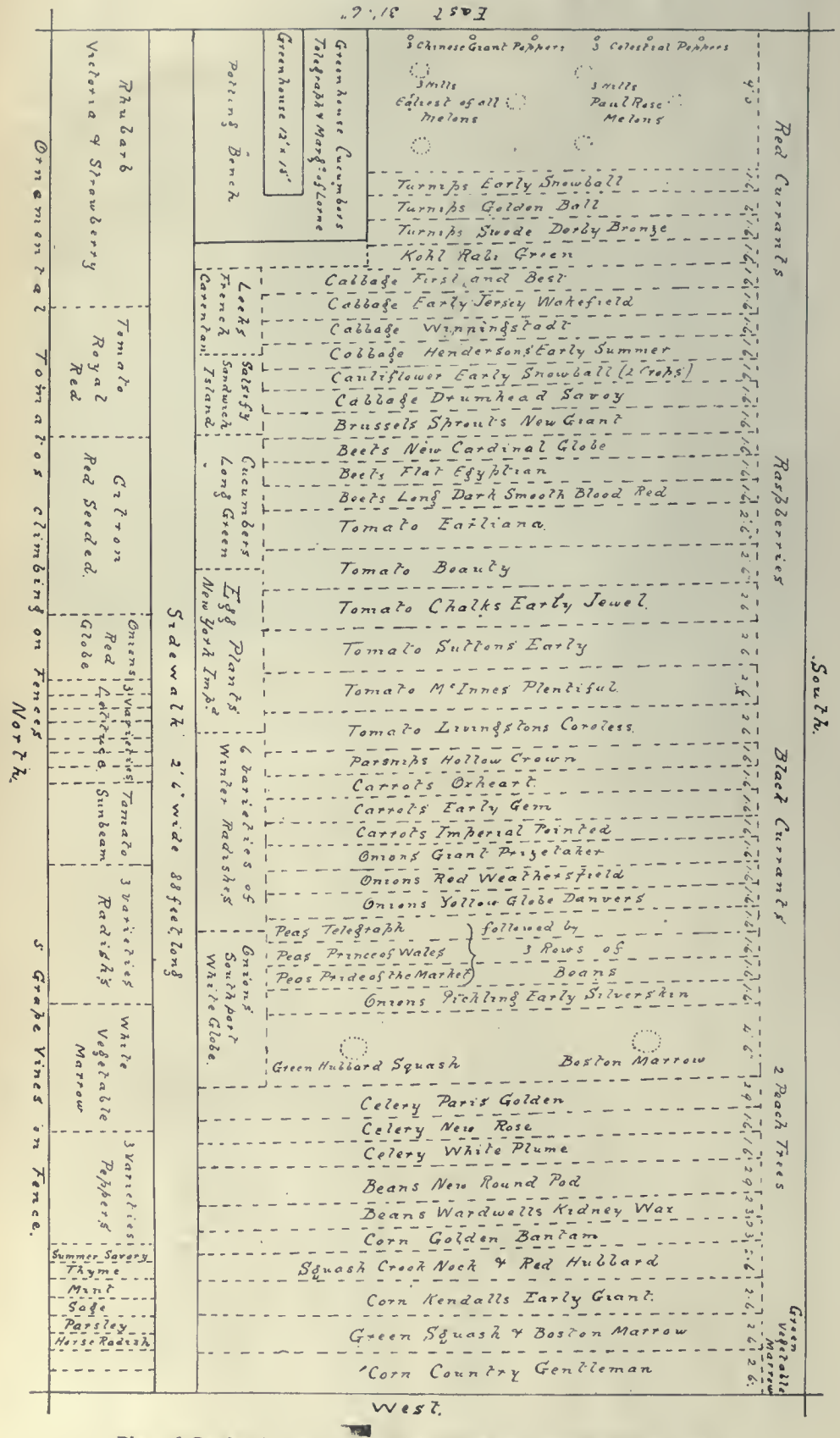
This partial removal of covering at first is desirable, so as not to expose the top growth of bulbs to frost or hot sun, the last named being quite as injurious to top growth of bulbs in spring as frost. Choose dull, showery weather if possible for removal of winter covering from all plants.—Wm. Hunt,

How to Grow Eighty-Two Varieties of Vegetables on a Small Lot

George Baldwin, Toronto

TO begin with, the writer is purely an amateur with four years' experience with city back gardens and with very little time on his hands for gardening, which has to be done before seven a.m., and after six p.m. However, the principal thing to do is to go at it with a will. The first thing to do is in the winter when you have more spare time, make a plan of your garden, marking down what you intend to grow (as is shown in the accompanying sketch). Then along about January or February, get a seed catalogue from the firm you intend to buy from, and I want to say right here that my experience with local seedsmen is that you can rely with safety on any one of them . It is all right once in a while to try some of the novelties which U.S. seedsmen offer, but patronize local firms for the bulk of your seeds and you will not go far astray.

After you have procured your seeds, look over your plan again and see which seeds need to be started in heat, and about the first or second week in March prepare your hotbed or greenhouse, and sow the following seeds: Cabbage—Family, Kohl Rabi, Peppers, Eggplants, Tomatoes, all varieties, Lettuce, Onions, all varieties, but pickling; Greenhouse Cucumbers, Celery, Musk Melons, and Citron.



Plan of Garden Twenty-Seven Feet Wide by Eighty-Six Feet Long

SOWING THE SEEDS

If you use a hotbed, sow seeds right in the bed, rows three inches apart; if in greenhouse, sow in seed pans and keep as close to the glass as possible, to keep the seedlings from getting leggy . Put in lots of seed, because it is easy enough to thin out, but do not plant seeds deeply. The writer uses a smooth piece of wood four inches long, three inches wide, and one inch thick. Sprinkle the seeds in a line or broadcast, and press them into the soil with the wooden block, and then sprinkle a very thin layer of silver or fine sand over the top, barely covering the seeds; then pat the sand down lightly with the wooden block, dampen with a very fine spray or rose, cover with paper or glass to keep moist, keeping the glass supported by litle sticks about an inch from the soil.

Do not let the seeds dry out or be sodden. Watch continually, and as soon as the second or third leaf of the seedling appears, transplant to berry baskets, about six to a basket, and keep them growing right along, until time to put them out in the garden, keeping down weed growth, stirring the soil, watering and airing on warm days, by opening windows in the greenhouse or raising sash of hotbed.

Along about this time, the frost should be getting out of the ground, enabling you to start your digging. Of course the garden should have been manured and dug roughly in the fall. If this was not done do the next best thing, by getting some rotten manure and digging it in deeply and levelling the surface ready for planting out between the 24th and 31st of May.

Montreal Melon Growing

Prof. Blair, McDonald College

THE following briefly outlines the method to adopt in growing Montreal melons: Usually we plant direct to three and a half to four inch pots, putting about five seeds to a pot. After the plants are fairly well started, in about two or three weeks time, we cut off the inferior plants, leaving only two plants to a pot, and later on one of these is removed. Sometimes we start the seed in flats and transplant in pots of the above size, using one plant to a pot. We have given up the use of strawberry boxes for starting plants in, finding that pots are in the end cheaper. The plants seem to do better in them, and they are transplanted from them with less difficulty.

CORRECT TEMPERATURE

The seed is germinated at a temperature not lower than sixty-five degrees at night, which may run higher in the daytime. Avoid over watering at this time, especially chilling by drenching with cold water. As soon as germination is complete, a night temperature not above sixty degrees is advisable. A high temperature with confined atmosphere forces growth too rapidly and a plant that does not stand transplanting well may result.

We aim to keep the soil in the pots moist, not wet. Give full benefit of sunlight, and all the ventilation that is possible without reducing the temperature too much. We start the seed about the first of the last week in March, about six weeks before planting out into frames.

About the latter part of April or early in May, the field is prepared by thorough deep cultivation on the heavy types of soil and shallower cultivation on the lighter soils. The ground should be manured with well rotted stable manure at the rate of fifteen tons per acre, spread broadcast and well worked in.

PREPARING THE TRENCH

We run out rows ten feet apart with a plow turning the furrows in opposite directions, making a V-shaped trench. Some of the loose soil is shoveled out and this filled with hot manure to a depth of about six inches and twelve inches wide, which is well tramped. The manure is then covered with the plow crowning the soil somewhat over the manure, leaving the dead-furrow midway between the frames when set. The ground is harrowed and the frames placed evenly over the furrows and fairly close together.

The frames are placed as early as possible, banked slightly and closed tightly to trap all of the heat possible. This is important in order to warm the soil thoroughly for the plants. Towards the end of the first week in May or in a week or ten days time, the plants are set.

PLANTING OUT

The plants are spaced in a row over the manure eighteen inches apart. Eight properly developed plants we consider sufficient for a twelve foot frame of four lights.

The frames require careful handling to keep the plants well ventilated and yet avoid chilling them. Watering may be necessary, although every advantage should be taken of warm rains. The ground is given frequent shallow hoeings to keep the surface loose and kill weeds. Some growers follow the practice of spreading a thin mulch of coarse manure around the plant, thus checking evaporation. This may be advisable under some conditions, but I prefer shallow surface cultivation.

When the vines fill the frames the frames are lifted and blocked up, allowing the vines to run out under the frame.

Growing Nutmeg Melons

F. Williams, Ottawa

I would not advise anyone to go into the business of growing melons unless he has open, sandy soil, with free drainage. Provided soil conditions are right and the land in good, fair condition. Our system is to give a fair dressing of manure in the spring and plow it in and then work thoroughly with the harrow, leaving the field in good condition. In the vicinity of Ottawa the seed should be sown about the middle of April so that they will make good stockey plants with the first leaf, well developed when ready to go in the field. In any case, the seed should be sown about four weeks before the plants are required for the field, which time will vary with the location and the state of the weather. We formerly used sods, but not finding them very satisfactory discarded them in favor of berry boxes. We formerly removed the plants from the box at the time of transplanting in the field, but have since found that this is not necessary, as the roots will find their way out through box, and the plants do equally as well without this extra labor.

Intensive Gardening

Last year I planted eight rows of potatoes across my garden plot on the tenth day of April. In each hill I placed a couple of seeds of garden peas. In this way the same piece of ground yielded a splendid crop of both potatoes and peas. After the potatoes were hilled up, I prepared three of the furrows between the rows for celery plants. I spaded the ground and worked in a generous supply of well rotted manure. Along with this I shovelled in some good rich loam. On the 15th of June I set out my celery plants, which up to this time had been growing first in a hot bed and afterwards in a cold frame until they were strong and stalky. The potato vines partially shaded the plants from the hot sun and held the moisture around their roots, so that in a week or ten days my celery plants had settled down to do business. —J.. W. Kennedy, Lyons, Ont.

Vegetable Gardening in New Ontario

Mr. Geo. Page grew this splendid collection of vegetables at Kenora, in the extreme north-west part of Ontario

The Canadian Horticulturist

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OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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January, 1910	8,925
February, 1910	8,967
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April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
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Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

A TAX ON CANADIAN FRUIT GROWERS

The offer of the National Council of Agriculture through Mr. E. C. Drury, its secretary, to do all in its power to help fruit and vegetable growers to obtain fertilizers, implements, spray materials, etc., duty free, should be taken advantage of by the growers. In the matter of fertilizers the fruit growers have been most unjustly dealt with for while the protection has been removed on their fruit and vegetables it has been left on their mixed fertilizers and other necessities.

Canada is said to be the only country in the world that taxes plant food in any form. This country imported last year from the United States fertilizer valued at $339,436 on which a duty tax of $33,944 was collected. This is not the whole story for this duty allowed the Canadian manufacturers to charge approximately the amount of the duty more on every ton of mixed fertilizer that they manufactured. This fertilizer tax alone is a considerable handicap in the growing of fruit and vegetables in competition with the United States producer and one that should be removed at once.

THE NECESSITY OF PACKING SCHOOLS

Packing schools are the order of the day all through British Columbia. Ontario and Nova Scotia are waking up. British Columbia fruit growers evidently believe in the old adage, that "what we have we will hold." They hold the premier position in apple packing and they do not intend to let any other province take this honor away from them.

A recent conversation with an apple dealer who spends part of each summer selling apples in the prairie provinces shows how far behind Ontario is in the race. As this man expressed it: "You can gamble on British Columbia apples, you know that each box in a car will be just like the first one. With Ontario apples you never know what you will get. Not only are the majority of the Ontario apples sent west poor in quality but the packing is worse. Each barrel is different from the one next to it and even the barrel itself does not run uniform in quality. Is it any wonder that it is harder to sell Ontario apples than British Columbia under these circumstances? The West has the money and will pay for good fruit and the Ontario fruit grower s making a great mistake in sending his lower grade apples west."

This is the manner in which a man on the ground views the matter. His is good advice. The day has gone by when dealers could say that anything was good enough for the Western farmers. If the Ontario fruit grower is going to hold the Western market he must learn to pack his fruit as well as the fruit growers of British Columbia and the Western States.

The high place given to British Columbia fruit in the prairie market is due in a large measure to the care taken by the government in looking after the market end of the business. Mr. Metcalfe, one of their inspectors has been kept travelling through the country visiting the markets of the central West examining the conditions in which the fruit arrived, the honesty of the packing and reporting back to the government and the fruit-growers in British Columbia both by official reports and articles in the papers. In this way the growers have been informed just what changes should be made in packing or what varieties of fruit the different markets required.

THE NATIONAL APPLE SHOW

We would like to know what preparations have been made for the National Apple Show? If those who were depended upon to keep this matter before the public are not doing their duty they will have only themselves to answer for if they are severely censured for lack of attention to duty if when the time comes we are not ready.

If Ontario is to have an apple show that will be a credit to the east there is no time to be lost. Preliminary organization should be started at once. Every fruit grower in the east should keep the holding of this great show before him and think out ways in which he can aid it.

WORK FOR THE HORTICULTURAL SOCIETIES

This is the time when those members of the horticultural societies, who have not already done so, should get together and plan out their work for the coming summer.

Arrange your lawn competitions in good time so that the competitors will have plenty of time to obtain earth for levelling up the lawns, the cutting out of unsightly trees or the removal of brush and rubbish, also the reseeding of the lawn where necessary, and the digging up of dandelions and weeds before the rush of spring work begins. Agitate against the unsightly bill boards. The creating of a strong, healthy sentiment is a great help in a campaign of any kind.

Bring pressure to bear on the town councils to give more care to the planting and care of shade trees, the laying out of flower beds, the care of parks and cemeteries, the levelling of unsightly dump piles, and the burning of rubbish that usually collects in such places.

In many towns, and especially the smaller places that do not employ a superintendent of parks and public grounds, much good work is done by obtaining the consent of the council to a proposition giving the full control of the public grounds into the hands of the local horticultural society. Where this practice has been followed good results and a greater interest in horticultural questions have been obtained. Appoint a committee to see what terms can be made, and then if successful lay your plans to make your home town the most beautiful town in Canada.

THE BROWN TAIL MOTH

Fruit growers all over Canada and especially in Nova Scotia should be on the watch for any evidences of the Gipsy or Brown Tail moth which have done so much damage in the New England States and upon which hundreds of thousands of dollars have been spent in an effort to keep them under control. Two parties of inspectors are working in Nova Scotia. The one in the West have not found any nests as yet. The other party, working in Yarmouth and Digby counties, have found a large number.

In one week one of the parties in the East discovered more nests than were found by all the inspectors in the season of 1910. Fruit growers and especially those in the infested areas should make a careful search of their own properties as well as of the trees along

the roadside and notify the Department of Agriculture of their province as well as the Department at Ottawa of any strange deposits of eggs, nests or caterpillars which might be the Brown Tail moth. At the present time the Brown Tail Moth is in the caterpillar stage. The caterpillars are housed in a nest formed of a cluster of leaves fastened together by a web. The nest is usually found on the new growth of the tree, and is easily seen. The collection and destruction of the winter nests is the best and easiest method of controlling the insect. This work must be done before the time the buds burst or the caterpillars will have left the nests to feed upon the young leaves.

BLOCK IMPROVEMENT SOCIETY

For some time past there has been in several United States and Canadian cities what is known as the block improvement society. The central idea is that the people living in each block should organize an improvement society to look after the beautifying and betterment of their own district.

This is a work that might well be taken up by the local Horticultural societies. The Toronto Society already has done good work in this direction. The idea can be carried out in places of almost any size. A cross-roads village if not too small might divide itself into four groups. A smaller place could organize in two groups, one on each side of the main street. Larger places would have a greater number of block divisions. By this means a friendly rivalry would be developed between the different blocks and the citizens would take more interest in the improvement of their own block and in each other than they would in a plan which included the whole city. A few of the pointers which might help are given below.

Whitewash everything you can't paint.

Plant lawns, flowers and trees wherever the ground shows bear. Keep the ground green.

Exercise the same supervision over your sidewalks as over your front yard.

Sweet peas, climbing nasturtiums, castor beans, hollyhocks, or even sunflowers make an effective screen to hide old fences, sheds, or other unsightly views. For permanent screens use hardy shrubs or quickly growing vines.

If you cannot have a grand lawn filled with choice roses you may at least have a window box filled with geraniums.

AN INTERCHANGE OF PROGRAMS

The Secetary of the Thornbury Horticultural society has sent us a copy of their annual announcement which offers some very liberal options in flowers, plants and bulbs in addition to THE CANADIAN HORTICULTURIST which is sent free to each member. The society distributes flower seeds to the school children and as an inducement will give the new crimson rambler rose Thousand Beauties and other plants as prizes. We would suggest that some arrangement be made by which a sufficient number of copies of the announcement of each society be printed so that one might be sent to each of the sister societies.

By this interchange of programmes the members of each society would know what the others were doing and would obtain valuable suggestions with regard to the management of their own society. The distribution of these announcements is of such importance that we think that the Department of Agriculture might well pay for the printing of a sufficient number of extra programmes from each society that they could send each society a programme of every other society.

The Thornbury society gives a total of twenty-two options which include such offers as three roses of standard varieties, fourteen geraniums in two and a half inch pots, three flowering shrubs or climbing vines, eight dahlias, ten begonias or cannas, one hundred tulips, thirty gladioli, six house plants, twelve lilies, four grape vines or two apple trees.

A NEW LINE OF WORK

The Peterboro Horticultural Society have undertaken a new line of work that might be followed by other societies in towns which do not keep a paid superintendent of parks. The Horticultural Society has been given full charge of the parks. The grants for their maintenance are made in its favor. The park committee of the Society appoint the caretaker and supervise all work done. In many town councils there are very few members who are interested in horticultural matters and even where they are interested a still less number have the necessary knowledge of plants and flowers. This system has given satisfactory results in Peterboro and might well be worth experimenting with in other towns.

PUBLISHER'S DESK

We often wonder if our readers realize the high character of our contributors to THE CANADIAN HORTICULTURIST. We endeavor to have those who are recognized leaders in their particular departments write for our columns. In this issue Mr. W. H. Gibson of Newcastle continues the description of his methods of cultivation, pruning and care of an orchard. Mr. Gibson is president of the Newcastle Cooperative Fruit Association and is probably one of the largest apple growers in Ontario as he has seventy-five acres of bearing apple trees in his orchard. He has revolutionized the type of farming in his district until the grain farmers of twenty-five years ago are now nearly all fruit growers.

Mr. A. McNeil, chief of the Fruit Division, Ottawa, gives seasonable advice on how to get more bearing wood in old orchards. Mr. W. Dreher takes up the question of early cultivation of the orchard. His system of later cultivation and the growth of cover crops will appear in our May issue.

The well known peach growers, Messrs. J. W. Smith & Sons, Winona, tell how to plant and grow peach trees. This firm is one of the largest and most successful growers of peaches and small fruit in Ontario and their advice will be of great value to those who contemplate embarking in peach growing. .Fr. M. Leopold, La Trappe, who is known as an authority on the apple, describes the planting and early care of the apple tree. Valuable short articles are given by experts in their line on root pruning, the value of bees in an orchard and other seasonable subjects.

This number being our Garden Annual, special attention has been paid to the flower and vegetable garden. Mr. Rederick Cameron, Superintendent of Parks, Toronto, gives very full directions for laying out an amateur flower garden. Articles on seasonable subjects such as the culture of asters, cannas and the care of window gardens also a page of seasonable hints for April and a planting table are given.

In the vegetable department, Mr. Geo. Baldwin, Toronto, who won two first, two second and two third prizes on his vegetables at the Canadian National Exhibition, gives an elaborate plan of how he grows eighty-two varieties of vegetables on a city let, 27 feet by 86 feet in size. Prof. Blair describes the growing of the Montreal melon while articles are given on intensive gardening and other seasonable matter.

Our next number will be devoted to Orchard cultivation and Home Improvement. We have articles by the best authorities on these subjects and would especially desire notes of a couple of hundred words describing any special improvement which has been made in the homes or grounds of our readers be sent to us. We will publish as many of these as our space will permit. Our Garden and Flower Department will be found full of valuable information. The page on what amateurs can do in May will be found right up to date, giving advice for work which can be started immediately.

Among the good things in store for our readers is an article on the value of bees in an orchard by Geo. W. Tebbs, Hespeler, who is an authority on this subject. Mr. George Baldwin will tell the amateur vegetable grower what to do in the garden in May.

Mr. A. V. Main, Almonte, well known to our readers, has sent us an instructive and interesting article on the Care and Decorative Use of Palms. Mr. Chas. L. Honeyman, Toronto, sends us a description of gardens seen in a trip to the Land of the Thistle. Mr. S. C. Parker, secretary of the Nova Scotia Fruit growers and one of the most prominent and progressive fruit growers of the province will describe the Co-operative Fruit Marketing in that province. All departments will be filled with interesting matter.

Have you been reading the "Talks on Advertising," that have been appearing on the Index page of each issue of THE CANADIAN HORTICULTURIST for the past several months? Would you like to secure a complete set of these "Talks" to look over or to keep? If so, our Advertising Department will be glad to send you a set on request as we have printed a supply of extra copies for those of our readers desiring them. When writing us if you think of any article or line of goods not now being advertised in THE CANADIAN HORTICULTURIST that you would like to see advertised, will you kindly mention it? Suggestions from our readers are always welcome.

Have any of our readers an extra copy of the November, 1910, issue of THE CANADIAN HORTICULTURIST? We desire two or three copies for our files as our supply of this number has become completely exhausted. If any of our readers have a copy of this number they can spare we would appreciate it much if they would mail it to us.

Annual Meeting

The annual meeting of the Shareholders of The Horticultural Publishing Co., Limited, which publishes both THE CANADIAN HORTICULTURIST and THE CANADIAN FLORIST was held in Toronto, March 17th. The report of the Directors as presented by the Managing Director, proved gratifying to the Shareholders who passed a vote of thanks commending the Directors upon the success that had been achieved with the publications. The following officers were elected.

President, W. H. Bunting, St. Catharines, Ont.; vice-pres., John H. Dunlop, Toronto; managing director and secretary, H. B. Cowan, Peterboro.

Directors: Hermann Simmers, Toronto; A. W. Peart, Burlington; Harold Jones, Maitland; and P. W. Hodgetts, Toronto.

A Planting Table for the Flower Garden

Dates for sowing depend upon local conditions. Tho se mentioned are for early districts.

NAME	TIME TO PLANT OUT	DEPTH TO SEED	HEIGHT OF PLANT	DISTANCE TO TRANSPLANT	SEASON OF BEGINNING	BLOOM LENGTH	COLOR OF BLOOM
Ageratum	June	⅛ inch	6 inches to 1½ ft.	1 foot	July	3 months	Blue.
Alyssum	April	½ inch	4 to 6 inches	6 inches	July	3 months	White.
Aster	May	½ inch	15 to 18 inches	1½ feet	July	3 months	White, pink, red, yellow.
Calendula	May	½ inch	1 foot	8 inches	June	3 months	Orange and yellow.
Candytuft	April	¼ inch	1 foot	6 inches	June	4 months	White.
Carnations	May	¼ inch	1 foot	6 inches	July	3 months	White, pink, red.
Chrysanthemums	May	⅛ inch	4 feet	1 foot	Aug.	3 months	Yellow, white.
Cosmos	May	¼ inch	8 feet	18 inches	Aug.	3 months	White, pink.
Dahlia	June	¼ inch	8 feet	2 feet	July	4 months	White, yellow, pink, purple, maroon.
Dianthus	May	1-16 inch	1 foot	1 foot	May	4 months	Pink to red.
Gaillardia	May	⅛ inch	1½ feet	2 feet	July	4 months	Yellow and red.
Heliotrope	May	⅛ inch	6 inches	1 foot	July	4 months	Violet, purple and white.
Larkspur	May	⅛ inch	1½ feet	2 feet	June	5 months	Blue.
Lobelia	April	¼ inch	1 to 2 feet	6 inches	June	3 months	Blue.
Marigold	April	¼ inch	1 foot	1 foot	June	3 months	Orange.
Mignonette	April	¼ inch	1 ft. to 15 in.	6 inches	June	4 months	White.
Nasturtium	May	1 inch	5 to 6 ft.	1 foot	June	5 months	Orange, yellow.
Nicotiana	April	⅛ inch	2 to 3 feet	1 foot	July	3 months	White, red.
Pansies	March	⅛ inch	6 inches	6 inches	May	5 months	Purple, white, mauve, violet
Petunia	May	1-16 inch	15 inches	1½ feet	June	5 months	Purple to white.
Phlox	May	⅛ inch	2 feet	6 inches	June	4 months	Red. white, purple, crimson.
Poppies	April	⅛ inch	14 inches	8 inches	June	4 months	Scarlet.
Portulaca	June	1-16 inch	6 inches	2 feet	June	4 months	Crimson, scarlet.
Salvia	June	¼ inch	2 feet	2 feet	July	3 months	Scarlet.
Scabiosa	April	1-16 inch	2 feet	4 inches	June	5 months	Red, purple, pink lilac, white
Stock	May	¼ inch	1½ feet	1 foot	June	2 months	White.
Sweet William	April	1-16 inch	6 in. to 1 ft.	6 inches	June	4 months	White, crimson, scarlet.
Sweet Pea	Mar.	3 to 5 inches	6 feet	6 inches	July	4 months	White, purple, red, pink, violet, maroon.
Verbenas	June	¼ inch	1 foot	1 foot	June	4 months	Purple.
Violas	May	¼ inch	6 inches	6 inches	June	4 months	Purple to white.
Zinnias	May	½ inch	1 foot	1 foot	June	6 months	Orange, red, scarlet, salmon

Hardy Perennials for Your Garden

THE CANADIAN NURSERY CO., Limited

10 Phillips Place, MONTREAL, QUE.

Nurseries at Pointe Claire, Que.

(A FEW GOOD SALESMEN WANTED)

We have in stock ready for spring planting, a particularly choice assortment of **PAEONIES, IRISES, PHLOX, LARKSPURS, FOXGLOVES** and other varieties of hardy herbaceous perennials, such as add so much to the beauty of the home surroundings. By judicious planting you can stock your garden or perennial border with plants that will afford a profusion of bloom from early spring till late in autumn. **We send out only strong field grown plants** that will bloom the first year.

We have also a very complete stock of ornamentals, including **Deciduous and Evergreen Trees, Flowering Shrubs, Hedge Plants, Vines and Hardy Bush and Climbing Roses.** We can in fact supply you with everything you may require for beautifying your home surroundings this spring. Being grown in our nursery near Montreal, our stock is hardy and will do well in any locality. Let us send you our catalogue, which gives full particulars regarding our **Hardy, Northern Grown Stock.**

LANDSCAPE DEPARTMENT

In our Landscape Department we have men skilled in the laying out and improvement of home or public grounds. We will be glad to help you in the laying out or improvement of your grounds, in the arrangement of a perennial border or any other work you may be doing this spring. Write for a copy of our booklet, **"More Beautiful Homes and How to Get Them."**

HARDY FRUIT TREES

We still have a good supply of many of the leading varieties of apple trees and other hardy fruits. Write for list of varieties and prices.

Durham Northumberland Fruit Institute

A most successful series of fruit meetings have been held in the Counties of Durham and Northumberland.

Both afternoon and evening sessions were held which were attended by large numbers of enthusiastic apple growers, who increased the membership of the Northumberland and Durham Apple Growers Association by two hundred and twenty-five new members.

The Bowmanville meetings, addressed by Mr. Caesar of the O.A.C., on spraying, and by Mr. Carey, Dominion Fruit Inspector, on orchard management, were undoubtedly the largest attended of any of the kind ever held in the district.

The Newcastle meetings were well attended and many features of apple production were ably discussed by Mr. Lick, Mgr. of the Oshawa Fruit Growers' Association, and Mr. Carey. The varieties of apples recommended for planting are those of high quality, of which the McIntosh, Snow and Spy are of special value, also the Alexander, Blenheim and Greening are advised, and the Gravenstein and Baldwin where the local conditions are favorable. It is advised that no more Ben Davis or Starks be planted, although those who have these two varieties should give them good care, as, no doubt, good paying prices will be obtained when exported to European markets in the years of scarcity. Our growers are now waking up to the great possibilities of this industry, and are planting very extensively, and taking Mr. French's orchard survey as a basis. It is a conservative estimate that there are now a million and a half apple trees in these United Counties, and with an acreage greater than that in peaches in Southern Ontario.

The meetings held at Orono were attended by a large and interested audience, and all were benefitted by the able addresses of Mr. Lick and of Prof. Crew of the O.A.C. In pruning a bearing orchard Prof. Crow advised keeping the trees down to a height of fourteen or sixteen feet by removing yearly a few leading branches, being careful to cut at a junction with another limb so the wound would heal readily; also thinning the outer branches to let the sunlight reach the bearing twigs and fruit buds which should be encouraged all through the centre of every tree. By this system of pruning, spraying, thinning and picking the fruit is easily done, and by judicious pruning of lower side limbs, cultivation can be carried on as close to each row of trees as desired.

Successful meetings were also held in Cobourg, Trenton, Port Hope, Colborne, Warkworth and Brighton. The attendance was large and the interest shown at all points very gratifying.

Vegetable Growers Oppose Reciprocity

At the annual meeting of the Vegetable Growers Association held in Toronto on March 8, there were members in attendance from branches of the Association at Brantford, Dunnville, Chatham, Tecumseh, Sarnia, London, Stratford, Belleville, Picton, Kingston and Ottawa.

The meeting was strongly opposed to reciprocity. After a full discussion the following resolution, moved by F. F. Reeves, Humber Bay, and seconded by C. H. Weaver, was unanimously adopted.

"That we, the directors of the Ontario Vegetable Growers' Association, representing branches in all parts of the province, at this our annual meeting, wish to enter a most emphatic protest against the proposed reciprocity agreement. We reaffirm

THE BEST FLORAL OFFER OF THE YEAR
Ten fine Gladioli Corms for 25 cents

WANTED !

5000 readers of The Canadian Horticulturist to accept this offer NOW and prove that it is the best spent quarter-of-a-dollar of the year.

The Gladiolus is a favorite flower wherever it is known. It is free from disease and it has no insect enemies. It is of the simplest culture. With such care as is given to potatoes Gladioli will increase and give bloom from year to year. Cultural directions are sent with each order.

Ten Gladioli (Groff's Hybrids) sent anywhere in Canada, postpaid, for a 25 cents postal note. Address

John Cavers, - Douglas Gardens
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Well Selected Varieties
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ONTARIO NURSERIES
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GOOD CROPS

ARE OBTAINED BY USING

THE BEST MANURE

AS SUPPLIED TO
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SURE GROWTH COMPOST

makes poor land fertile, and keeps fertile land most productive. Supplied by

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We are interested in your gardening plans. Let us assist you to decide.

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Beautify Your Homes! A start cannot be made too early. We have everything that is hardy and attractive—Shade and Ornamental Trees, Vines, Roses, Paeonies, Flowering Shrubs, Perennial and Bedding Plants, Fruit Trees and Bushes, etc., all grown at our Nursery. Send for our free catalogue.

The Pointe Claire Nursery George Milne, Manager, Pointe Claire, P.Q. Mail order address, P.O. Box 155, Montreal

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Get double the present results from your time and labor. Use Planet Jr farm and garden implements, and secure bigger and better crops with less work.

Planet Jrs do the work of three to six men. They do it more accurately, and cause a greater yield. They are the result of a practical farmer's 35 years' experience. **Fully guaranteed.**

No. 6. **The newest Planet Jr Combination Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow,** opens the furrow, sows any kind of garden seed accurately in drills or hills, covers, rolls down, and marks out the next row—all at one operation. Perfect Wheel-Hoe, Cultivator and Plow.

Planet Jr 12-tooth Harrow, Cultivator and Pulverizer is a wonderful tool for berry-growers and market-gardeners Works deep or shallow without throwing earth on the plants, and pulverizes the soil thoroughly. Invaluable wherever fine close work is needed.

You can't afford to miss the 1911 illustrated Planet Jr 56-page catalogue. **Free and postpaid.** Write today.

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Write for the name of our Nearest Agency.

Get 98% or Better Perfect Fruit

There will be no "off year" for your trees if you cultivate them right and protect them against all insect enemies with

ELECTRO Arsenate of Lead

(In Powdered Form)

It is certain death to all leaf-eating insects. You can depend absolutely on dry Electro Arsenate of Lead because it is the only one in amorphous (non-crystalline) form. Mixes instantly with water and stays long in suspension—or can be used as a dust. Rain cannot wash it off. We guarantee it to contain 32½-33% arsenic oxide—twice the strength of other brands—yet it will not harm the tenderest foliage because it contains less than ½ of 1% water-soluble arsenic. Prove it from tests at Conn. and N. J. Agri. Exper. Stations. Write us for them.

Send for folder on Electro, interesting to all fruit growers. Folder on Electro Lime Sulphur tells how to use this solution which is certain death to San Jose Scale and sucking insects and the best fungicide for summer treatment.

Buy Electro brands from your dealer, but if he cannot supply, send to us for prices and proofs and name of nearest distributor.

THE VREELAND CHEMICAL CO
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Buy the Cheapest Form of Nitrogen

NITRATE OF SODA

Contains 15 $\frac{65}{100}$% AVAILABLE nitrogen.

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on this necessary plant food. It is the most effective form of nitrogen because immediately available.

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our belief in the memorial presented to Sir Wilfrid Laurier and members of the cabinet by our delegation at the joint meeting of protest at Ottawa by fruit and vegetable growers, and we heartily endorse the action taken by the executive committee in bringing the matter before the branches, and pledge ourselves to use every legitimate means through our members in the Dominion house and otherwise to prevent the said measure becoming law."

The election of officers resulted as follows: President, Thos. Delworth, Weston; 1st vice-president, T. A. Newton, Woodstock; secretary-treasurer and editor, J. Lockie Wilson, Toronto; executive committee, Thos. Delworth, J. Lockie Wilson, C. H. Weaver, Dunnville; F. F. Reeves, Humber Bay; S. D. Dawson, Tamblings.

Barrie Horticultural Society

Mr. A. Carson, Barrie, who paid THE CANADIAN HORTICULTURIST office a pleasant visit reports that the members of Barrie Horticultural society are very enthusiastic over the success of their society which since 1907 has increased in membership from thirty-two to two hundred and forty-five, truly a phenomenal growth. Before the end of 1911 they hope to reach the five hundred mark.

Largely through the influence of the members of the horticultural society the town council has appointed a park commission with an annual grant of $1,500 for the upkeep of the parks and boulevards. Mr. Carson says that the good effects of the work of the society can be seen in the increased care and attention paid not only to the beautifying of the homes of the people but also to the town as a whole.

Whitby Horticultural Society

We had a very pleasant call from the Rev. J. Fletcher, President of the Whitby Horticultural Society. He reports that this society, though not large in numbers, is flourishing, and that it is making its influence felt in general civic improvement and the beautifying of the town. This society gives a year's subscription to THE CANADIAN HORTICULTURIST free to each member, and also a very desirable list of roses, bulbs, and plants as options.

Toronto Horticultural Society

The Toronto Horticultural Society made the following very generous offer to the Board of Education, which was accepted:

The Society proposes to give seven silver and seven bronze medals, and twelve first, twelve second, and twelve third prizes in money, to be competed for by the pupils of seven schools, one in each ward. Six first, six second, and six third prizes will be given for Third Book pupils, and six first, six second, and six third prizes to Fourth Book pupils. The prizes will be given for two vegetables, two bedding flowers, and two climbing flowers. All the pupils who compete for these prizes will have to use the same varieties of vegetables and flowers. The two vegetables selected are beets (Early Model Globe), carrots (Chentenay). The two bedding flowers are asters (Victoria) and larkspur (Double Dwarf Rocket). The climbing flowers are sweet peas and nasturtiums. All flowers are to be mixed colors. Each exhibit must be the product of the pupil's own garden, and of his own efforts. The decision will be made by considering the care taken of the plot, the condition of the soil, the quality of growth, the general appearance, &c.

THIS IS THE FIRST U-BAR GREENHOUSE ERECTED IN CANADA. IT WAS BUILT AT ST. ANNE DE BELLEVUE FOR MR. R. B. ANGUS

There Are Some Who Don't Know What The U-Bar Form of Greenhouse Construction Is, So We Want to Have a Little Chat About It.

To start with it is the actual combining of the steel rafter and the wooden sash bar in one. It's done by encasing a small sash bar in a "U"-shaped steel shell. The U-Bar is then no larger than the ordinary sash bar, but it is many times stronger. These bars are placed 24 inches apart, and run from ridge to sill, forming a beautiful, curved eave line, doing away with the ugly shade casting gutter and many lateral members.

U-Bar Greenhouses are the best greenhouses built, because every sash bar is really a rafter, making the house equally strong at all points. Spacing the glass 24 inches, while not making the U-Bar any larger than the usual wooden sash bar, gives the lightest house made. Then it is **both** the **strongest** and **lightest** house.

Next month we will tell you more about how this house differs from other houses. Send for catalogue.

U-BAR GREENHOUSES

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HURST SPRAYERS ON FREE TRIAL

NO-MONEY-IN-ADVANCE. PAY AFTER IT HAS PAID FOR ITSELF.

LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." *We pay freight. Wholesale dealers' prices.*

Man-Power Potato & Orchard Sprayer. Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in *half*. High pressure from big wheel. Pushes *easy*. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needn't send a cent to get it "on trial." You can get one free if you are first in your locality. Write now.

Horse-Power Potato & Orchard Sprayer. For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** *Try this machine at our expense with "your money in your pocket."* See free offer below. Write today.

Fitz-All Barrel Sprayer. Fits *any* barrel or tank. High pressure, perfect agitation, easy to operate. *Brass* ball-valves, plunger, strainer, etc. Automatic strainer. *No "cup leathers or rubber"* about any of our sprayers. Furnished plain, mounted on barrel, or on wheels as shown. *5 year guarantee. It don't cost you "a cent" to try it in your orchard. Get one free. See below.* Write today.

FREE—Get a sprayer FREE.—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your Neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with $2.00 or send you check if you have paid cash.

For every Man-Power Potato & Orchard Sprayer we sell we will credit you with $3.50 or send check.

For every Horse-Power Potato & Orchard Sprayer we sell will credit you $8.50 or send check.

We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.

Ontario Seed Coy., Successors, 138 King St., Waterloo, Ont.

COUPON—Fill out and send today. *This Coupon will not appear again.*

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Send me your Catalog, Spraying Guide and "special offer" on the sprayer marked with an X below.

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GOULDS RELIABLE SPRAYERS

Only thorough work with the best machinery will accomplish the best paying results from spraying.

You *must* spray if you would have perfect fruit, and it doesn't pay to bother with a cheap outfit. It means no end of trouble and it's too risky—you have too much at stake.

Goulds Sprayers have proved their superiority by years of service. We make the sprayer best suited to your conditions. It will last for years because all working parts are made of bronze to resist the action of chemicals. "You can depend on a Goulds" to work when ever and as long as you require.

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It discusses the matter thoroughly. It gives valuable spraying formulas and tells how and when to use them.

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is so thoroughly locked together, unit by unit, that the hardest windstorm cannot budge; the heaviest rainstorm cannot penetrate; the severest lightning cannot harm. And that means Preston Shingles.

Possibly you may think wood shingles are cheap. They are—in the worst sense. Only metal shingles should roof any building of yours. And any metal shingle is better than any other roofing. But Preston Shingles excel—in every practical way—all other metal shingles. Shouldn't you know about that? The book that proves is waiting for your request. 17

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PRESTON SAFE-LOCK SHINGLES

Branch Office and Factory, Montreal, Quebec

No pupil may receive more than two prizes, but a prize winner may also win a medal.

The gardens of all competitors will be first examined by the teachers of the school in each ward. A committee of the teachers should reduce the gardens to the best ten belonging to Fourth Book pupils and the best ten belonging to Third Book pupils. Committees of the Horticultural Society will be appointed to visit these ten and award the prizes to the best.

The Horticultural Society has arranged with the Davies Manufacturing Company to have fertilizers delivered at the schools for one cent per package.

Suggestions for Lawn Competitions

R. W. Brooks, secretary Brantford Horticultural Society, sends the following suggestions to members to aid them in preparing for lawn competitions:

In marking, the whole place is considered; the lawn and the garden is marked on five points—

1. General effect or lay out, or ground plan of the place, 30 points.

2. Neatness and order in keeping lawns, walks and boulevards, 20 points. Keep your lawn thoroughly weeded, and edges neatly trimmed; mow as often as the mower will cut it.

3. Care and taste shown in selection of flowers, plants and shrubs, etc., 20 points. In laying out your plantings as a rule avoid straight lines and sharp angles.

4. Floral display, 20 points. Plant all flowers you wish, but plant shrubs at their back to give a more pleasing effect while the annuals are out of season, as well as when they are in bloom.

5. Difficulties overcome, 10 points. Some allowance is made in new lawns or old fences covered with wires, or any drawback the competitor may have. Try to plant so as to make the whole place one single picture of a home, with the house its chief feature, and the outside boundary line its frame.

Major H. J. Snelgrove, a representative of the Ontario Horticultural Association on the Board of the Canadian National Exhibition, put up a stiff fight for giving "a square deal" to amateur floriculturists, and succeeded in inducing the Agricultural and Horticultural committee to revise the prize list so as to increase the prize money for certain classes and bring others within the scope of amateur growers. Professional florists will not have it all their own way this year, as formerly. The prize list will be issued in April. Mr. R. B. Whyte, of Ottawa was selected as judge in the floricultural department.

The growers and packers of oranges, lemons, pine apples, and box apples are endeavoring to put up each year a more attractive and superior article. An attractive substitute is taken in preference to a scabby, ill appearing apple, and we must at least keep posted or the King of Fruits in the East will be compelled to take a tion and declining popularity.—Jas. E. tion and declinng popularty.—Jas. E. Johnston, Simcoe, Ont.

We have still on hand a few copies of the Index to volume XXX., which will be sent to those of our readers requesting same. They are free but are only sent on request.

STRAWBERRIES

Thirty-three selected varieties to choose from—new and old, early, medium and late. William Belt and Meade for the garden; Uncle Jim and President for fancy market; Gill earliest and Nettie latest. Senator Dunlap and Sample, good anywhere. All but the new varieties, **$4.00** per thousand, express; **$1.00** per hundred, postpaid.

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HERBERT—the most vigorous and productive raspberry grown to-day, **$3.00** per hundred.

EATON—the largest berry and on soil suited to it ,the heaviest bearer. **$3.00** per hundred.

KING—a splendid early berry, firm, and a good shipper. **$2.00** per hundred.

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If your dealer hasn't Ewing's write for our Illustrated Catalogue and buy from us direct.

10

Wm. Ewing & Co.
Seedsmen
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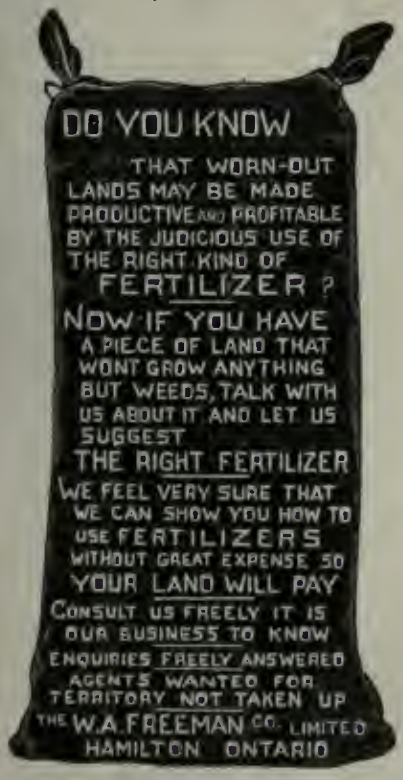
Fertilize Your Lands


DO YOU KNOW
THAT WORN-OUT LANDS MAY BE MADE PRODUCTIVE AND PROFITABLE BY THE JUDICIOUS USE OF THE RIGHT KIND OF FERTILIZER ?
NOW IF YOU HAVE A PIECE OF LAND THAT WONT GROW ANYTHING BUT WEEDS, TALK WITH US ABOUT IT AND LET US SUGGEST THE RIGHT FERTILIZER
WE FEEL VERY SURE THAT WE CAN SHOW YOU HOW TO USE FERTILIZERS WITHOUT GREAT EXPENSE SO YOUR LAND WILL PAY
CONSULT US FREELY IT IS OUR BUSINESS TO KNOW
ENQUIRIES FREELY ANSWERED
AGENTS WANTED FOR TERRITORY NOT TAKEN UP
THE W.A. FREEMAN CO. LIMITED
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THE FINEST IN THE LAND.
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The Hand Spramotors, No. 1 and 2, with horse drawn cart, can be used for orcahrds, vineyards, row crops, or weed spraying. As shown it is arranged for row crops and weeds, but all attachments are interchangeable. Has Steel Axle, 52 inch wheel of best hardwood, adjustable width of track and rows, all brass Spramotor, with brass ball valves, mechanical agitator, compensating plunger. All of the highest grade throughout; for one horse only. Price $47.00 to $54.00.. Write for free treatise.

Two Gold Medals National Horticultural Congress.

Heard Spramotor Co.

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Do You Intend To Abandon Your Farm?

In New England there are hundreds of abandoned farms—abandoned because the soil has been drained of its fertility. Had these farms been properly fertilized they would still be producing bounteous harvests.

New England farms are not the only ones that are being depleted of fertility. There are thousands of other farms which are rapidly approaching the point where further cultivation will be unprofitable unless some means is adopted to renew the fertility of the soil.

If you do not intend to abandon your farm, it will be necessary to supply fertilizer to the soil. It is not only necessary to apply manure, but it is absolutely essential that it be applied evenly and in proper quantities.

Manure cannot be spread evenly by hand. Experience has demonstrated that the spreader is the only method by which manure can be applied uniformly.

It is just as necessary to exercise judgment in selecting a spreader as it is on any other subject. There are many spreaders on the market. The I H C spreader has proved its superiority by giving the users years of efficient service. With an I H C spreader you can regulate the distribution of manure so as to make every ounce count. Adjustments can be made to spread a light top-dressing or a heavy covering. This is possible because I H C spreaders have a wide range of feed, and the long, square, chisel-pointed beater teeth thoroughly pulverize the manure that is applied. Wide tires and roller bearings insure light draft.

I H C spreaders are made in two styles—

Cloverleaf—Corn King

Cloverleaf spreaders have endless aprons. Corn King machines have return aprons. These machines are made with capacity suitable for farms of any size. Call on the I H C local dealer and let him show you the style and size best suited to your purpose, or, if you prefer, write to nearest branch house for catalogue and full particulars.

I H C Service Bureau

The Bureau is a center where the best ways of doing things on the farm, and data relating to its development, are collected and distributed free to every one interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. If the questions are sent to the I H C Service Bureau, they will receive prompt attention.

CANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

International Harvester Company of America Chicago U S A
(Incorporated)

PROVINCIAL NOTES

Fruit Growing in Prince Edward Island

J. A. Moore, Hazelbrook,

When undertaking the profession of fruit growing the first necessity is a soil not too heavy and good natural drainage. I do not think the lay of the land matters much, for I have seen as good fruit grown on land sloping to the north as on land sloping south. Land sloping north and west seems to be the ideal.

A good preparation for fruit would be to have a crop of clover or peas or buckwheat plowed down in the fall, then work up the ground in the spring and lay off the rows lengthwise and across the field, and plant the trees where the lines intersect. This is a very convenient system, as it facilitates working among the trees, enabling one to work at different angles.

If there is no natural shelter, a windbreak should be planted when the trees are planted. Two or three rows of spruce bushes, two yards apart and two yards apart in the rows, set so that they would break joints, as it were, would soon make a splendid windbreak, and let it be right round the field.

I think that five acres enclosed this way would be about the right size for an orchard. Of course it need not all be planted at once.

VARIETIES

The varieties best suited for this climate and the markets are: Early apples—Crimson Beauty, Red Astrachan, and Duchess; Fall—Wealthy, Dudley, and Alexander; Winter—Belle Fleur, Baxter, and Stark. Gravenstein also does well, but not on its own stalk. It must be top grafted.

There are many theories as to how to treat an orchard, but I think that clean cultivation is the best method, especially for young trees. Vegetables may be grown provided plenty of manure is applied to keep the trees growing. If no cover crop is grown—that will die down and protect the roots in winter, such as clover, peas, or vetches—then some manure should be banked around the trees late in the fall or early winter. White building paper wrapped around the trunk will keep the mice from girdling the trees. Preferably white, because black or tar paper will attract the sun in March and cause the sap to rise and then sudden frost would burst the sap cells and injure the trees.

SPRAYING

I think the reason we have had no scab and no wormy fruit in ten years' apple-growing is that every year, fruit or no fruit, we have sprayed every tree in the orchard. An orchard sprayed every year just after the buds open and again after the bloom falls, will not be troubled much with insect pests. So then, prepare the ground; set out your trees; plant a hedge; give attention to cultivation, and then, as the deacon said in church—"Let us s(pray)!"

Mr. W. T. Macoun, Dominion Horticulturist of the Experimental Farm, Ottawa, advises the spraying of orchards with Bordeaux four times with the old formula 4-4-40 and the use of a combination of Paris Green and arsenate of lead. In this way the quick action of the Paris Green is secured together with the adhesiveness of the arsenate of lead.

SPECIAL 25c. OFFER

of Vegetable and Flower Seeds of Proven Quality---Post Paid

1 PACKET EACH

Sweet Pea Specialty, mixed	10c
Nasturtium, Dwarf, Mixed	5c
Pansy, Monarch, mixed	10c
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Radish, Scarlet Globe	5c
Cucumber, Perfection	10c
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I will also include free 1 pkt. Eschscholtzia Carmine King (10c) and 1 oz. Spinach Triumph (10c) to the first two orders from each town.

ESCHSCHOLTZIA CARMINE KING

SEND FOR CATALOGUE.

This is an Actual Loss to me, but I want two persons in every postal town in Canada to try my seeds, for every trial means a future customer. Note the following extract from a letter received from one customer:

"Montreal, 10th Sept. 1910.

"All the plants grown from the seed I had from you last spring turned out magnificently.

(Signed)
Gustaff Gylling.

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Considering the extremely low rates we cannot possibly permit any change in the varieties.

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25 PKTS.

Bean—Simmers' Giant Wax
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Carrot—Scarlet intermediate
Celery—White Plume
Corn, Sweet—Cory
Cucumber—Chicago Pickle
Cucumber—Long Green
Lettuce—Simpson's Early
Muskmelon—Montreal Green Nutmeg
Watermelon—Cuban Queen
Onion—Yellow Danvers
Onion—Prizetaker
Parsley—Champion Moss Curl'd
Parsnip—Improved Hollow Crowned
Pepper—Sweet Spanish
Peas—American Wonder
Peas—Stratagem
Pumpkin—Mammoth
Radish—Scarlet Turnip, White Tipped
Salsify—Mammoth Sandwich Island
Squash—Summer Crookneck
Squash—Hubbard
Turnip—Purple Top, Strap-leaved
Tomato—Early Ruby
And packet Wild Garden Flower Seed Mixture. Also a copy of Simmers' Vegetable and Flower Garden (New Edition).

Contains 25 packets of the **best Vegetable Seed,** sufficient to furnish vegetables throughout the year, and one packet of Flower Seeds, which we will send postpaid to any address in the Dominion of Canada for the extremely attractive price of $1.00.

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Contains 30 Pkts. of Flower Seeds for $1.00

Alyssum, Sweet—Little Gem
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Everlasting Flowers—Mixed
Gaillardia—Annual
Godetia—Mixed
Gourds, Ornamental
Marvel of Peru
Marigold, Double—Mixed
Mignonette
Morning Glory
Nasturtium—Tall Mixed
Nasturtium, Dwarf—Mixed colors
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Petunia
Phlox Drummondi—All colors Mixed
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is not accidental, but the natural result of the realization of a higher ideal in piano quality than ever before recorded in the history of Canadian piano building.

Musicians and all music lovers who are ready to acknowledge superiority have recognized their superlative qualities and voluntarily paid them unstinted praise.

Allow us to tell you more about them. Ask for Catalogue and prices.

GOURLAY WINTER & LEEMING
188 Yonge St., Toronto

A Plea for the Observance of Arbour Day in the Country

Much has been done during recent years towarda the beautifying of Canadian cities and towns by the awakening of the people to the importance of making their homes more attractive by the planting of trees, shruba, vines, and herbaceoua plants. Many influences have been at work, chief among which are the Horticultural Societies, which through their organizations have been able to do much to bring about the great improvement which is already apparent.

In the country, unfortunately, it is quite otherwise, and one fails to note any decided improvement in the home aurroundings during recent years. To us it seems almost sad that in the older settled parts of Canada a large proportion of farmers' homes are bare and uninviting to the passer-by. The contrast between the city and country home in Canada becomes greater every year, and greatly to the advantage of the city. This should not be so. With the greater room in the country and the abundant sunlight, the country home should be a delight to all beholders, and we are glad to say some country homes in Canada are a great credit to their owners.

Can nothing be done to change all this? We believe that something could be done if interest can be awakened in the right quarter and it seems to us that the Women's Institutes are the best organizations to effect a change. Through organizations plants could be ordered and distributed to the members; or as there are so many beautiful wild trees, shrubs, and vines which can easily be obtained in the woods without cost expense need not be a consideration. Then there should be a certain day or afternoon set apart every year as Arbour Day when the women would see to it that some planting was done about the home grounds. A vine one year, a tree or shrub the next, a flower bed, a hedge, a flower border, a well kept lawn; all these would gradually come and in a surprisingly short time there would be a great change. One can imagine Arbour Day becoming a day looked forward to in every community when each family would vie with its neighbor in making the greatest improvement in the shortest time.

Will not the women of Canadian rural homes rise in their might and see to it that their homes are made as beautiful as any in the land? There is abundant information about gardening that can be obtained free for the asking. Which will be the first Women's Institute to take this good work in hand? Perhaps some have done so already.—W. T. Macoun, Dominion Horticulturist.

Fortune From One Acre

The possibilities of profitable gardening on one acre of land are not confined to France, where the system of intensive culture on such small plots has become the most developed. An acre of land cultivated on the French system near London yielded last year £600 in gross returns, which is a record for England. The nearest approach to it is an acre of land between London and Oxford, which has yielded in one year flower seeds to the value of £260.

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The R-K Lighting System will make your home attractive, cheerful and inviting. Beautiful fixtures for the different rooms giving a pure white brilliant light superior to gas or electricity at one-half the cost. Can be installed anywhere, in your residence-church-store, etc Easy to operate-fully guaranteed. Write our nearest office for Booklet C.

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Hand Power Vacuum Cleaner

The Machine with the "Double Tank," Light, Powerful, Easy Running.

THE AUTOMATIC HAND POWER VACUM CLEANER has a valve and piston pump action. The movement of the lever handle backward and forward forces the air up through the hose nozzle bringing with it all the loose dirt, dust, etc. The double tank device for separating the dust from the air catches 95 per cent. of the dust in the bottom of the tank without screens, baffles or water; the remaining 5 per cent. is screened through a canvas covered cylinder. The frame is made of malleable iron and steel, and is very rigid. The hose 12 feet long made of rubber and interlined with spring steel wi e which prevents collapsing and kinking. Hose is 1 inch in diameter; tube for attaching tools 4 feet long, made of brass tubing nickle-plated; nozzle or mouth piece is of aluminum and has an opening of 7 by ¼ inches. The machine is light, compact and easy to carry, slip joints are used on all connections making them instantly detachable and interchangeable. May be operated by one or two persons. Fully guaranteed or money refunded. FREIGHT PREPAID TO YOUR NEAREST RAILROAD STATION.

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Largest Builders of Hand and Electric Power Vacuum Cleaners in Canada.

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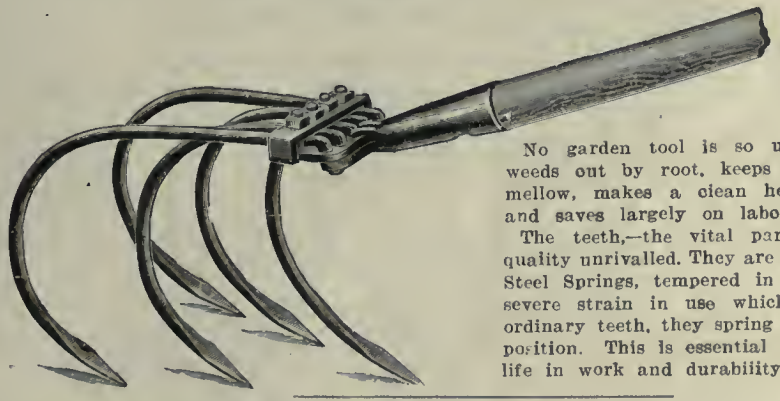


Handle 4½ Feet long

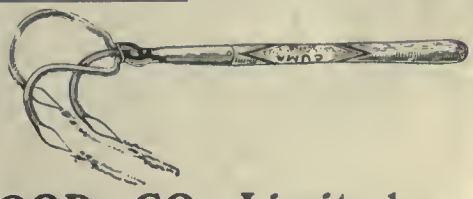
No garden tool is so useful. Cleans weeds out by root, keeps soil fine and mellow, makes a clean healthy garden and saves largely on labor.

The teeth,—the vital parts,—are of a quality unrivalled. They are all high grade Steel Springs, tempered in oil. After a severe strain in use which would ruin ordinary teeth, they spring right back to position. This is essential to get proper life in work and durability.

The 'CUMA' CULTIVATOR

Length over all 18 inches.

Similar in quality to the "Buco" The greatest little Tool in the world for flower beds and fine work. Sold by Hardware and Seed Trade. If yourdealers cannot supply you, write us direct



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(Signed) MADDEN BROS.
Tinsmiths and Hardware Merchants.

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Strawberry Plants

40 leading varieties sold at prices you can afford to pay. Catalogue free. It will pay you to secure it before you order your plants. 100 plants sent post paid to any address in Canada for $1.00

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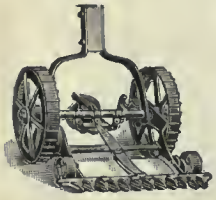
STRATHROY, - - ONTARIO.



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There are three things that destroy your lawns, Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out.

CLIPPER LAWN MOWER Co.
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ARTICHOKE ROOTS
WHITE AND RED

$2.00 a bushel (50 lbs.) 50 cents a bushel on ordering, the balance on delivery; express or freight charges at the buyer's expense.
$1.50 a bushel for farmers' clubs and dealers.
We will accept orders till the 15th of May.
Write for circulars, French and English, which give you all necessary information.
We have in culture seven acres of white and red artichoke roots.
We encourage all farmers to try that easy, money making and very economical culture for feeding pigs.
Send your order early and as in the past we'll give you satisfaction.

MARCOTTE & GOSSELIN, Producers
St. Roch de Richelieu

Dahlia Culture

L. W. Barclay, Morrisburg, Ont.

If all the readers of THE CANADIAN HORTICULTURIST knew, as many of them do, the pleasure and beauty to be derived from the planting of a few select dahlia roots, there would be many more flowers to decorate their homes this season.

The Dahlia is not very particular as to kind of soil on which it is grown, but it prefers a sandy loam and it wants it rich and loose, and above all, well drained.

LOCATION

They should be planted in a position where they will get the full sunlight the greater part of the day. A shady situation causes too spindly a growth and poor flowers.

It takes a Dahlia plant nearly two weeks to get through the ground after planting, therefore the season should be so chosen that the young shoots will appear after all danger of frost is past. Otherwise it will be necessary to cover them on cold nights. Plant the tubers on their side about five inches deep.

Do not crowd your plants. Give each plant a space of at least two and a half feet. A stake should be set at planting time for securing the plant from winds. If pushed in the ground later when the plant is two or three feet in height, the roots, or perhaps the tubers, will be severely injured.

PINCH OFF SHOOTS

As soon as the first shoots are six inches tall, cut off all but one, or at least two, of the strongest and keep all shoots that come out later cut off. This is one of the main kinks in Dahlia culture, and one certainly not to be despised if fine flowers are wanted. Some pinch off the top of the shoots when they are a foot high to make a more bushy plant, but I do not advise this practice.

Cultivate and water well—not a sprinkling now and then, but at least two pails full every week. Give a good soaking at each watering.

There is a color or combination of colors and a type of Dahlia to suit almost any fancy, but I prefer the show Dahlia, and if I have any particular choice it is the Frank Smith, a purplish maroon, shaded to almost black, each petal tipped white. It is certainly a beauty.

WINTER CARE

When the green plants have been frozen by the first hard frosts, cut off the stalks to six inches. Carefully lift the tubers, leaving quite a lot of ground on the clumps. Place where they will dry thoroughly for a few days, when they can be placed in the cellar until spring. A Dahlia root will keep safely anywhere a potato will, but they must be kept from frost or excessive heat during the winter months.

Since the resignation of Mr. A. McMeans from the staff of the Guelph Agricultural College, the vegetable growers of Ontario have not been represented by a practical vegetable grower at the college. What do our vegetable growers think about it?

HANDY GARDEN TOOL

Here's a practical tool for the farmer or gardener—our No. 6 Combined Double and Single Wheel Hoe, Hill and Drill Seeder. Four tools for the price of one. It plants in hills or continuous rows, covers the seed, rolls the soil, marks the next row, hoes, weeds and cultivates. Simple, easy to operate, and does a day's work in 60 minutes.

IRON AGE Farm and Garden Tools

For 75 years we have made dependable tools of quality for the farmer, trucker and town gardeners. We make 33 garden tools at $2.50 to $12.00 each.

Write to-day for Anniversary Catalog describing our entire line including potato planters, cultivators, sprayers, diggers, orchard and other tools.

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Stocks carried at many convenient points. Ask for address of nearest Canadian agency

You can cultivate between berry bushes when the Bissell Garden Disc Harrow is closed up, or under fruit trees with wings added. Adjustable—for single horse, or light two horse harrow. Low or high seat. Reversible—In-Throw to Out Throw. Remember, no harrow is genuine without Bissell name stamped on it. Ask local dealer about the Bissell or write Dept. N for Catalog.

T. E. Bissell Co. Ltd., Elora, Ont.

The Bissell
GARDEN HARROW

You can't sow thistles and reap figs. If you plant Ferry's Seeds you grow exactly what you expect and in a profusion and perfection never excelled.

FERRY'S SEEDS

Fifty years of study and experience make them reliable. For sale everywhere. Ferry's 1911 Seed Annual free on request.

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Prize at New York State Fair, September, 1910

Vick's Violet King, Mikado White, Mikado (Rochester) Pink, Vick's Early Branching, Rose and White, 20c per dozen, $1.00 per hundred.
Vick's Branching Pink, White, Rose, Lavender Semple's Pink, Royal Purple, Daybreak and Purity, truly the aristocrats of the aster family; 15c per doz., 75c per hundred; packed and labeled separately in wet moss. All plants sent by express and guaranteed to arrive in good condition. Express prepaid on orders over $2.00. Remit by money order.

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Carries With it the Strongest Assurance of QUALITY.

McDonald's TESTED SEEDS TRUE-VIGOROUS-RELIABLE

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POULTRY DEPT.

Cooperation in Handling Eggs

A large produce firm in Montreal state that they throw out from two to four dozen eggs out of each case that they handle. Who pays for this loss? The egg dealer is not in the business for his health and he bases his prices upon what he will get for his whole stock, good, bad or indifferent.

It is estimated by Prof. Elford of McDonald College that about twenty-five million dollars were paid out last year by consumers for eggs while the sum realized by the producers did not exceed fifteen million dollars. In other words ten million dollars either went to the middle men or was lost owing to the careless manner in which the poultry men gathered their eggs. The results of this lack of system is that some seventeen per cent. are either broken in transit or are bad and have to be thrown out by the produce firms which handle them before they are sold to customers. This alone means a loss of about two million dollar a year to the egg producers of Canada. This loss is made good by the men who sell good eggs as the dealers protect themselves against loss by paying enough less so that they will make a profit on the whole. Thus the men who sell good eggs really provide the money to pay the careless ones for their bad eggs.

Is it not about time that the poultry men got together and decided on some plan whereby they could place their product in the hands of the consumers direct and save this enormous loss. The man who lives near a city or town can deliver his eggs two or three times a week and guarantee them absolutely fresh, and obtain the highest price. There is always a market for first quality eggs but there are so many low grade eggs which pull down the average price paid to the producer.

Again too many men get a share of the profits. The local dealer buys the eggs all at the same price and makes very little inquiry with regard to the degree of freshness, the local dealer sells to the commission merchant, the commission merchant in town sells to the small grocery store from which the consumer is supplied. Thus the consumer pays a great advance in most cases ever what the poultry men receive yet due to the number of hands that the eggs have to pass through and the length of time taken the quality is usually very poor.

COOPERATION IN DENMARK

The Danes are leaders in cooperation and in that country the producers are grouped together in what is known as cooperative egg circles. They go so far as to grade eggs with regard to color and size making it the aim of their association to supply the consumer with exactly what he wants and of course charge him accordingly. The cooperative handling of eggs has been successful for years in Denmark. This system is also working satisfactorily in several communities in Canada and the United States.

CONDITIONS NECESSARY

The best results for the fresh egg circles are to be had where the circle is of such dimensions as will enable it to supply a certain number of eggs the whole year around. Some of the conditions necessary if the egg circle is to be a success are given below and will be found just as important for a circle

The Canadian Horticulturist

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Pollination of Apple Blossoms

Prof. J. W. Crow, O.A.C., Guelph

Mr. George E. Sanders, B.S.A., carried on some most interesting investigations in the College orchard in 1905 and 1906. Mr. Sanders defines two distinct conditions which have to do with imperfect setting of fruit. The first is self-sterility, which means that an individual or a variety is incapable of fertilizing its own blossoms even though perfect pollination may take place. The self-sterile varieties when planted in isolated situations or in large blocks do not bear well. The same varieties when planted in mixed orchards may yield abundantly. Some varieties have invariably proven self-sterile, while others consistently prove completely or partially self-sterile. Self-sterile varieties bear as much pollen as self-fertile ones, and the pollen is as good for fertilizing other varieties as is the pollen from a self-fertile sort. The remedy for self-sterility is mixed planting with any variety which bears an abundant supply of pollen and blooms at the same date as the self-sterile variety.

IMPERFECT FERTILIZATION

This condition may arise even in the case of varieties which are capable of fertilizing their own blossoms, and of course, may also arise in connection with self-sterile fruits even when efficient pollinizers are close by. The indications of imperfect pollination are small, mis-shapen fruits. On examination, one-sided apples usually prove to be fertilized only on one side, possessing a small number of well developed seeds. As a rule, cross-pollenized fruit is found to be larger than that self-fertilized. It was noted that imperfectly fertilized fruits are more likely to be attacked by scab on the side on which the seed does not develop than on the fertilized side. Also, it was noted that imperfecly fertilized fruit drops more readily than perfectly fertilized fruit. Thinning of the fruit on the tree causes imperfectly fertilized fruit to stay on better and grow larger than it otherwise would. This is simply because the individual fruits are better nourished than they would be if they were all left on the tree.

BEES THE REMEDY

The remedy for imperfect fertilization is the introduction of bees, as it has been clearly proven that insects perform practically all of the work of transferring pollen in the case of tree fruits. The inter-planting of varieties which bear abundant supplies of pollen is also useful as an additional means of securing more perfect fertilization.

The above is a brief summary of Mr. Sander's conclusions. These have, I believe, been verified by other investigators and experience also points out the necessity of securing perfect pollination.

With regard to the question whether frost is likely to be more injurious in cases where pollination is delayed through wet weather and lack of insects, I can only say that in seasons such as last spring, when frosts were commonly experienced, the injuries were more serious

Results of Imperfect Fertilization

The above shows the necessity of perfect pollination. Photograph furnished by Prof. Crow, O.A.C.

with those varieties or in those districts where trees were in full bloom. Where fertilization was sufficiently far advanced that fruit could be said to have "set," the fruit remained on the tree and matured, although in many cases apples were disfigured by injuries due to frost experienced in the early stage. With this fact in mind, it would certainly be correct to state that the keeping of bees in orchards is desirable for the purpose of bringing about fertilization at as early a period as possible. Bees, are of course, necessary before pollination can take place at all.

EFFECT OF PERFECT POLLINATION

The accompanying illustration shows the results of work done by the writer in following up Mr. Sanders' investigation. Five lots of fifty apple blossoms each were made use of. From one lot (No. 5) four pistils were removed; from the second lot (No. 4) three pistils were removed; from another lot (No. 3) three, and from a fourth lot (No. 2) one pistil was removed. One lot of fifty blossoms was left in normal condition with five pistils, or rather the entire five sections of the pistil in their natural condition. Pollination was performed at the same time and under the same conditions in the case of all five lots of blossoms. The accompanying photograph shows the quantity of fruit produced in each case. It wil be noted at once that the largest number of apples was produced by the normal blossoms and the decrease in productiveness is almost in direct proportion to the number of sections of the pistil removed. On examination, however, it was found that the largest number of good seeds per apple was in the case of lot No. 3. It is not well, of course, to draw conclusions hastily, but in so far as this one experiment can be made use of as pointing towards any definite result, it would seem to indicate that a surplus of pollen has the effect of producing fruit regardless of the actual degree of fertilization which may take place. This may or may not be correct, and I wish simply to suggest the question for further investigation. You will note that lots Nos. 1 and 2 have reached considerably larger size than lots Nos. 3 and 4 and 5, and the inference is plain, of course, that thorough pollination influences very materially the size of the fruit. It was also noted in connection with this investigation that the apples of lots No. 1 and 2 were decidedly better in color than those of lots 3, 4 and 5.

In planting I trim off all damaged roots and a few of the longest ones, and cut the stalk down to eighteen inches, leaving four to five good buds to start the head of the tree. I prune regularly, thin out the branches so as to let in lots of daylight, and keep the tree down, so that the fruit can be easily picked. I picked one hundred baskets from eight trees, and could reach every peach from the ground. I cultivate with some hoed crop until such time as the trees need the ground.—L. H. Robinson, Leamington, Ont.

Orchard Cultivation*

W. Dreher, Macdonald College

Stop cultivating and sow a cover crop before the season's growth stops in midsummer. From that time trees begin to get ready for the winter by ripening their wood, consequently all work tending to promote growth must stop so as to allow the trees sufficient time to mature properly. By means of cover crops the roots will be protected from frost. The ground will better hold the snow and allow its water to penetrate instead of washing off the surface soil in spring rains. These requirements, together with that of checking the growth of the trees in summer, are fulfilled by sowing a crop about the middle or end of July, which by winter will cover the ground, forming a mulch of vegetable matter. Besides these advantages it benefits the trees by improving the physical condition of the soil and enriching it in plant food when plowed under to form humus early in spring.

WHAT KIND OF COVER CROPS

It remains to be determined what crop to sow after cultivation has ceased. This is a local question, and the fruit grower will have to use his own judgment for the choice. The experimental farms, however, have experimented with a number of crops, and can tell the advantages that each will give in certain soils and under given climatic conditions. From these the grower can choose those he thinks will answer the purpose best. He can also do that from his own field crops of which he possesses knowledge and with which he has had experience. Clovers, peas, vetch, oats, rye, buckwheat, or rape may be used. The clovers, peas or vetch are to be preferred as they enrich the soil in nitrogen. Crimson clover at the rate of twenty-five pounds per acre or vetch at the rate of one and a half bushels per acre give two of the best cover crops. These are sown broadcast and harrowed in at the last cultivation early in July.

TILLAGE VS. SOD

It might at first glance appear that it does not pay to give the orchard that attention which involves all the afore described operations and that satisfactory results can be obtained by allowing the trees to grow in sod. While some growers in special conditions have received fairly good returns from such orchards, the general experiments point to the fact that tillage gives the best results. Just in what particular points it gives better results can be best illustrated by quoting an experiment conducted near Rochester, N.Y., by Mr. W. D. Auchter in an orchard of nine and a half acres of Baldwin trees.

The orchard was divided into two plots, of which one was left in sod, the other tilled and seeded with an annual cover crop. The trees in both plots received as nearly as possible identical treatment as to pruning, spraying, fertilizing and all other orchard operations except the system of culture.

The results after five years are summarized as follows:

The average yield on the sod plat was for the five years 72.9 barrels per acre; for the tilled plat 109.2 barrels; difference in favor of tilled plat of 36.3 barrels.

Actual count showed 434 apples per barrel on the sod land, weighing 5.01 ozs. each, and 309 apples per barrel on the tilled plat, weighing 7.04 ozs. each. The advantage of tillage over the sod mulch in the matter of uniformity of trees and crops is marked. The trees in sod showed abnormalities in foliage, branches, roots and particularly in fruit bearing and in fruit characters.

Among a number of other differences in favor of the tilled plat was the dark rich green color of foliage of the trees in the latter, indicating that they were in the best of health. On the other hand the yellow color of the leaves of the sod trees told at once that something was amiss.

The average cost per acre for the two methods, not including harvesting, was $17.92 for the sod and $24.47 for tillage, giving a difference of $6.55 in favor of the sod. The average net income per acre for the sod was $71.52, for the tilled plat $110.43, a difference of $38.91 in favor of tillage, an increase of 54 per cent. for tillage over the sod mulch method of management.

A Typical Unpruned Tree. Fig. 1.

Training Neglected Suckers on Apple Trees

A. McNeill, Ottawa

An apple tree that has been pruned back severely, and in consequence has developed a rank growth of suckers which have not been properly pruned and trained as they developed, forms after three or four years a very serious problem in pruning. Merely to thin out the suckers will not do, because those that are left have long naked shanks with the new growth and bearing wood if any has developed, many feet in the air.

Perhaps the best general advice that can be given is to thin the suckers, and make grafts close back to the large wood on those that it is desirable to use as the foundation for the new head. In no other way can we be sure of getting the bearing wood low down and close to the heavy supporting wood. When the grafts have made a growth of one year they should be cut back as previously described and the remainder of the suckers may then be cut away altogether, and the growth from the grafts will take their place.

It is quite possible, too, if the suckers are not too large, the new growth if cut back severely, will develop dormant buds, and a new top can then be developed from these, care being taken to prune back the new growth, and thus not repeat the error that one is striving to correct.

Whether the method by grafting or trusting to dormant buds would be the better, can only be determined by actually seeing the tree. But, speaking generally, it can be advised that if the suckers have grown to a diameter of three-quar-

* Extract from an address delivered before the Quebec Pomological Society.

ters of an inch or over, grafting would be the surest method. If less than three-quarters of an inch, it is quite likely if cut back to within six or eight inches of the larger wood, this stub would develop new wood.

Pruning Trees

Much interest is being manifested in the Georgian Bay district in the better care of their orchards. This interest has been caused largely by the great success that attended the work of the demonstration orchards under the supervision of Mr. J. F. Metcalfe, representative of the Department of Agriculture in this section last year. This year the Georgian Bay Fruit Growers, Limited, and an English syndicate, of which Mr. Metcalfe is manager, are buying up and renting orchards, and the farmers are waking up to the fact that their orchards are worth taking care of.

The illustrations represent a sample of the work done at Clarksburg by Mr. C. Penrose, and his crew of pruners, for the English syndicate. Figure No. 1 is a typical unpruned tree; Figure No. 2, shows the same tree properly pruned. As will be noticed, in thinning out the tree care has been taken to take as few large limbs out as possible. The small wood has been thinned out around the outside, and the centre opened up so that the tree could be sprayed, and the sun get in to color the fruit. Great care was taken not to break off the fruit spurs and the outside wood was all shortened back from six inches to a foot.—G. F. M.

The Tree Shown on the Opposite Page After Having Been Properly Pruned. Fig. 2.

Orcharding in the Oshawa District

Elmer Lick, Manager Oshawa Fruit Growers, Limited

Pruning is one of the most important operations in the orchard in spring. March is usually the month in which most of this work is done, chiefly for the reason that the orchardist has more time at his disposal at that season, but where this has not been attended to earlier the old adage applies here, "Better late than never," and this work can be continued through to June with no injury to the trees, but, on the contrary, with great improvement to the fruit.

In this district there is very much more interest exhibited in pruning than ever before. Many of the old orchards have been allowed to grow too high. These have been cut back in order that suckers may grow out from the main limbs and be trained into new bearing wood. Prune to get the head as large as the distance between the trees, but no larger, and then by annual heading in, keep them down to this size. Clean out the top and outside and keep the centre full of bearing wood. In dehorning large trees do not take out more than one-quarter of the top in any one year, otherwise the balance between the roots and the branches may be destroyed. Paint all cuts with the white lead and linseed oil, using no turpentine.

SPRAYING

Spraying has been proved to be an absolute necessity if we are to produce good fruit, and lime-sulphur is the most convenient and effective method of combatting fungus diseases and insect pests. In this district the majority of farmers and fruit growers are using commercial brands of lime-sulphur. For the dormant spray, use one of the mixture to ten of water; no injury will be done to a tree until after the leaves are about a half inch long, athough it is more effective in combatting the blister mite, if applied just as the buds are beginning to burst.

I do not think that in this district we can do without a second spray, as the strong dormant spray could not in average seasons be applied later than May first, while the second spray for blight should come on about May 10 or 15. I use this spray at a strength of one of lime-sulphur to thirty-five of water, and mix two to two and one-half pounds of arsenate of lead to the forty gallon barrel. This prevents early infection of the scab fungus and poisons any leaf eating insects which may be hatching out. The third spray should be of the same strength and applied just as the blossoms are falling. Plenty of power should be used and the spray driven well into the calyx of the flower. I am satisfied that three sprayings a year for three years will entirely control the oyster shell bark lice. If, however, they are very numerous, the quickest method is to apply a spray of the dilute lime-sulphur, one to thirty or thirty-five of water, just when the little insects are hatching out, which is usually about the first of June. Lime-sulphur at this strength is sure death to the young oyster shell bark lice. In some cases, a fourth spray about two weeks after the blossoms fall, is advisable in preventing infection of scab, but in the majority of cases the three mentioned sprays are found to be sufficient.

CULTIVATION

The orchard should be plowed as early in the spring as the land can be worked, and then cultivated every ten days or two weeks until about the first of July, when the cover crop should be sown. I do not practise cultivation close to the trees but leave from one to three feet around the trunk in sod, as I believe this sod is a protection to the tree and a preventive of collar rots. An additional reason is that it takes money to cultivate close to the trees, and as the feeding roots are some distance from the trunk of the tree, it is absolutely of no use except as an aid to the appearance of the orchard, and when a man is in the business from the dollars and cents standpoint he cannot afford to spend much money on appearances.

COVER CROP

Almost any crop may be used as a cover crop. Clover has the advantage of adding the expensive nitrogen from the atmosphere in addition to its value as a humus former. I prefer buckwheat, for the reason that it is a sure catch, the seed is cheap, and it will hold the snow and leaves better than a shorter growing crop like clover.

I firmly believe that twitch grass has as many good points as an orchard cover crop as any other plant, although I would hardly advise sowing it for this purpose. No seed is required, for as soon as the cultivator is stopped it comes in of itself, makes a good growth in the

fall, which makes a dense mat of vegetation, which keeps the apples clean. In order to obtain high-class apples and especially of such varieties as Snows, Macintosh Red, Duchess, Spy, it is absolutely necessary to thin them. It is of no use to grow culls and the fruit grower might as well pick the fruit off through the summer as to let it go until fall. In short in order to obtain good apples it is necessary to prune and spray thoroughly, plow early in the season, cultivate regularly until the first of July, then seed to cover crop, and thin out the apples.

OSHAWA FRUIT GROWERS, LIMITED

The above association, of which I am secretary, has had a very successful season, last year having shipped 7,500 barrels of apples, of which the farmers received for the apples alone an average of $2.69 for No. 1, and $1.75 for No. 2. These high prices were largely due, in addition to the efficient work done by the secretary and manager, to the thorough work in spraying as done by the members of the Association. This success has had its effect upon adjoining farmers as many of those who a few years ago would not think of spraying, are waking up to its necessity, and buying spray pumps and material. Up to the present the Association has sold one hundred and fifty barrels of Niagara lime-sulphur, three tons of arsenate of lead, seventy-five bags of sulphur and thirty spray pumps to its members.

Pruning at Planting Time

J. H. Hare, B. S. A., Whitby

In this district many of our best growers have an erroneous idea of letting the young trees grow a couple of years without pruning. In planting, trees should be selected that have the head formed from two to two and one-half feet above the ground; the new growth should be cut off from six to eight inches from the trunk, and the trees thoroughly cultivated for five or six feet from the trunk during the summer.

In order to prove the benefit of pruning the trees at the time of planting, an experiment was conducted, in which part of the trees were planted just as they came from the nursery while the limbs of the others were cut back to six or eight inches from the trunk. On the unpruned trees there was almost no growth of wood, the leaves were small and had a dried up appearance and were only about one-half the usual size. The trees appeared to suffer greatly from drought, and did not look healthy. In fact, the owner feared that he would lose them entirely, and the greater number of them were pruned about the middle of August. This seemed to revive the trees to a considerable extent as they put forth new growth. This growth, however, was very soft, not ripening up well and it is doubtful if it will stand the winter.

A Well cared for Orchard in the Grimsby Fruit District

The trees which were cut back made a vigorous growth of fifteen to eighteen inches, did not appear to suffer from drought and went into winter quarters with the wood well ripened up. From one-half to one-third the growth should be taken off each year in order to make a good stout vigorous foundation for the trees.

Spraying in British Columbia

W. J. L. Hamilton, South Salt Spring, B.C.

The spring season is on us again with all the work it entails. Disagreeable work, too, for of all unpleasant things to handle, lime-sulphur spray of winter strength (one to ten) is the worst. Hence it is well to see that it is effectively done, so as not to require repeating.

Before spraying the trees should be thoroughly pruned, and the prunings, together with as many leaves as possible, should at once be raked up and burned, whereby a great deal of scab and other fungous infection, together with many insect enemies, and their eggs, are destroyed. Then each tree should be sprayed from four different points, the spray being first directed against the small twigs, and then against the branches and stem. No portion of the tree, however small, should escape a thorough dose of spray, and then the ground under the tree should receive its share, to kill fungous spores.

After the trees are all thoroughly sprayed, the orchard will take care of itself until spring when the spraying should be repeated just before growth commences.

The ground should then be thoroughly disked and a few days afterwards re-disked crossways. From this on until time for the summer growth to ripen, constant cultivation should be given, the different summer sprays being used from time to time as directed.

In using the ready manufactured lime-sulphur spray it should be used with nine or ten times its bulk of water, and this spray is rendered much more efficient, and at the same time more visible, if twelve pounds of quick lime are added to, and well stirred up in each barrel of forty gallons of mixed spray.

A really efficient pump and nozzle are imperative, for the spray should not be applied as a douche, but as a very fine, misty spray, with force enough to penetrate everywhere.

Buy a Spray Pump

Even if you have no more than a dozen trees it will pay you to buy a spray pump. The barrel spray pump is what the average small fruit grower needs. It will be cheaper to buy the pump and then mount it on a good molasses or vinegar barrel, than to buy one already mounted. Any man handy with tools can easily mount the pump on the barrel himself.

It is poor economy to select a cheap pump. Get one with all the working parts made of brass, for if made of iron they corrode rapidly with the spray material. A pump with the working parts made of brass will cost more in the beginning, but will be cheaper in the end.

Any time after the leaves have fallen and before the sap begins to flow, pruning may be done. By making the pruning an annual task the labor is lightened and its efficiency increased.

What Amateurs Can Do in May

BEFORE good work can be done in any occupation proper tools must be provided. One can garden quite satisfactorily with a garden fork, spade, rake, hoe and trowel. A wheelbarrow will also be needed. A few other conveniences that are necessary are a garden line that can be bought for fifty cents, a pair of pruning shears can be obtained for seventy-five cents. A hand weeder and a few feet of hose will also be required.

When digging a plot of ground, always begin at one end and work backwards; thus you will always have firm footing on the unbroken surface. When digging work in the manure or fertilizer at the same time.

IN THE FLOWER GARDEN

Seed sowing and transplanting will be the first work in the flower garden. Plants that have sprung from seeds sown earlier in the house should not be transplanted from the house to the open ground without first going through a process of hardening-off. This is done by gradually introducing the plants to the changed conditions of outdoor life by exposing them for a few hours a day at first to outside influences. One of the best places to harden tender plants is a cold frame. This hardening can, however, be accomplished by setting the plants outside where they can either be lifted inside again or protected until they become accustomed to the changed conditions.

Nasturtium, balsam and portulaca seed can usually be sown outside with success about the second or third week in May. Sweet peas can be sown early in May. Do not sow seeds where the plants will be shaded by trees. If possible have the rows running north and south. The soil should be dug over deeply and a liberal amount of well rotted stable manure worked in sufficiently deep so that it will not touch the seed. Plant the seed in benches at first, covering with only one or two inches of soil. More soil can be raked in as the plants grow. If the soil is of a clayey nature do not plant the seeds as deeply as if it is more sandy.

Corms or bulbs of gladioli can be planted towards the end of May and even earlier in some localities. Plant the bulbs three or four inches deep and about six or eight inches apart, and either in clumps or rows. The ground should be thoroughly prepared before planting. Dahlias can also be planted towards the end of the month. Canna roots should not be planted until after the middle of June.

Cobea scandens is one of the best annual climbers for covering trellis work, fences or rockeries. Sow a few seeds at once and keep them in the window or hotbed. About three seeds in a three or four inch pot will be sufficient. It is better not to repot before planting out as they do not transplant readily if separated. Use rather light, sandy soil and keep the soil in the pots moist and they will be ready to transplant outside early in June. Plant the whole pot of plants together, whether there be one or two or three plants in the pot.

If it is necessary to move spring flowering bulbs when they have passed their usefulness to make room for other plants, the bulbs should be dug up and heeled in just below the ground in some out of the way place and left there until July. The bulbs should then be lifted and kept in a cool, dry shed until they are required again for fall planting.

Secure and plant some new perennials in the herbaceous border. This class of plants are easily grown and will provide a succession of bloom the greater part of the season.

LAWN MAKING

Repair the bare patches on the lawn by seeding or sodding. Soil from excavations and cellars should be removed and replaced with a rich loam. If the lawn is uneven or has never been properly levelled, dig it deeply all over. Work the surface thoroughly, filling all the hollows by raking, and then roll thoroughly.

Before sowing the seed have the surface as fine and smooth as possible. The creation of a good permanent sod depends as much upon the preparation of the soil as on anything else.

Kentucky blue grass is the mainstay of a durable greensward, but the best plan is to buy a ready mixed lawngrass seed from a reliable seed dealer. Sow liberally and evenly, then rake and roll. Great care should be given to all the details, as a lawn is the basis of the whole scheme of decorative gardening.

THE VEGETABLE GARDEN

The soil should be thoroughly worked and a liberal application of well rotted stable manure made at the same time. Onions, peas, spinach and other hardy vegetables may be planted as soon as the ground is fit for them. Seeds of tender plants, such as cucumbers, corn and squash, should not be planted until all danger of frost is past. Soak seeds of beet, carrot, parsnip and beans over night, when they will come up a few days earlier. Care should be taken not to plant the seeds too deeply in the spring. If frost threatens, young seedlings should be covered with paper, leaves, or soil. The cover should be removed as soon as the danger is past.

Radishes will thrive in any good soil, but to be crisp and tender, should be grown quickly. Sow every ten days or two weeks to provide a continuous supply. Good varieties are Scarlet White-tipped Turnip and French Breakfast.

A delicious plant for home growing is salsify or vegetable oyster. Sow the seed as early as possible. Handle the crop the same as parsnips. Sandwich Island is a good variety.

Lettuce should be sown early in May.

Palm House in Allan Gardens

This is a view of the cascade in the palm house in Allan Gardens, Toronto, but it conveys a poor idea of the pretty effect produced by the falling water among the tropical foliage and flowers. The Garden is bound to become a favorite place for visitors, already large crowds of people have visited it and are asking to have the extension put in so as to provide more space for promenading. There is at present a fine display of Azaleas, Begonias, Cineraria Hybrida and Shelda, Cyclamen, Schizanthus, Genistas and Primulas, Kewensis and Sinensis, also Orchids, Cattleya Trianae, Sophronitis Grandiflora, and Nepenthes Ameslana, also a fine collection of Stove plants, well worth seeing. The house is open the following hours: 9 till 6, week days: 1 till 5, Sundays.

Among the best varieties are Big Boston and Black-seeded Simpson. Two of the best onions are Yellow Globe Danvers and Red Wethersfield. A good parsnip is Holland Crown. For early squash plant the White Bush Scallop; for later varieties in the order given, grow Summer Crook Neck and Hubbard.

Keep the surface soil stirred and cultivate the soil around all growing crops. It will kill the weeds as soon as they sprout, saves moisture, and assists plant growth in many ways.

AMONG THE FRUITS

Remove the mulch from the old strawberry bed and leave it between the rows. It will help to save the moisture, protect the fruit from the earth and make the work of picking much pleasanter. If your garden does not contain strawberries start a patch this spring. These fruits are easily grown and deserve a prominent place in every amateur's garden. Plant in rows three feet apart, with plants fifteen to eighteen inches apart in the rows. If the garden does not already contain them, plant currant and gooseberry bushes five feet apart. Raspberries and blackberries also deserve a place; if space is lacking they can be trained up against the fence.

PRUNING ROSES

The best time to prune roses is just as the buds are starting. Cut out all dead and weak branches. Head back the remaining branches to within a few inches of the old wood. Remove all dead and weak wood from your climbing roses. Cut back the remaining branches to about five feet, unless you wish the bush to cover the screen or fence more quickly. By shortening each year a more compact climber is secured.

Spring and Summer Bedding Plants

E. F. Collins, Toronto

FIRST and foremost, every gardener should consider color arrangements, in fact, it is really the chief point to study. Cheap plants and bulbs well arranged as to color are always pleasing to the eye of even the poorest critic, while the best of material forming poor combination of color, is mean to look at, and a meaner advertisement of the taste and ability of the person planning the display. We sometimes hear complaints as to the short life of such plants as tulips and hyacinths. This is true in some seasons when they are slow to open. I have found that by planting combinations of bulbs and plants that this objection is partially overcome. Let us take a bed of red or pink tulips when they are out of the ground about six inches. Plant white daisies between them. If there is not room just plant the daisies as an edging to the bed.

A mass of blue and white hyacinths looks well edged with the different blue shades of pansies, or a bed of any of the single narcissi, such as Golden Spur, Emperor, Empress, or bi-color Victoria looks splendid with a groundwork of all the dark shades of pansies. Plant the pink and red shades of daisies as a background for white hyacinths or tulips. It is surprising what a beautiful display can be made with a few plants by a little forethought and good judgment.

After the bulbs are over, if you want to change the bed, the bulbs can be lifted, and stocks, balsam, or any upright growing plants set between the pansies or daisies. If they are kept well supplied with water and the seed pods kept off they will flower until frost.

SUMMER BEDDING PLANTS

The arrangement of summer bedding plants is even of more importance with regard to the color arrangement and the point of view the plants will be seen from. I find all pink shades look best when seen with a background of trees and when looking away from the sun. Other white or light color combinations also look best in the same position and in partial shade. Reds, bronzes, yellows, and all rich, bright colors appear at their best when seen looking towards the sun. It will be seen that it is of much importance which side of the walk or the location in the pleasure grounds that the different colors are placed.

SCREENING OF FENCES AND BUILDINGS

All fences and buildings should, if possible, be grouped together with tall plants and tropical foliages, with bright splashes of colors here and there. These colors should be kept close to the grass in front and not come next to the structure itself.

Carpet bedding may be placed on terraces or in the angles of the paths or near gateways. Vases or any other artificial work must never be placed in a patch of lawn by itself.

Arrangement of Lawn and Flowers

R.E. Rowe, Brantford

Running down the west side of the lawn shown in the illustration is a wood fence, which divides my lot from the neighboring one, and against which was planted half way along assorted sweet peas, which grew and flowered in great profusion, almost covering the fence. From where the sweet peas left off petunias began, assorted colors, which continued to the end of that side of the fence, the whole making a very striking and pleasing border.

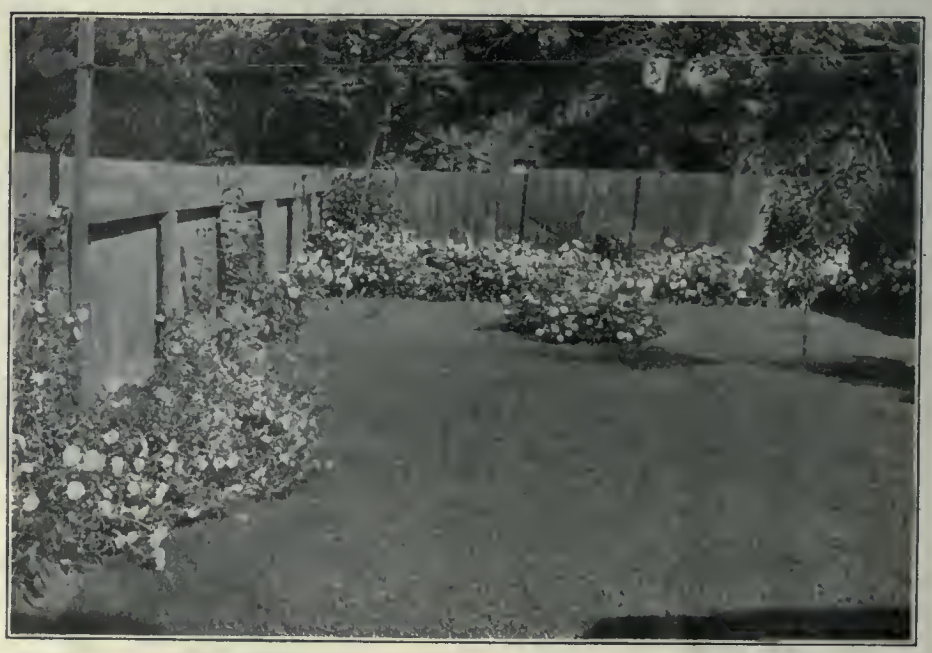
On the north the lawn was bordered by a deep row of various colored asters, and behind which was a row of dahlias, the whole hiding from the casual observer's eye a beautiful bed of tomatoes.

On the east side, which is partly bordered by a brick building, verbenas and nasturtiums grew and made a very effective border.

In the centre of the lawn, in a small diamond bed, was a profusion of red geraniums, which stood out in striking contrast to the green of the lawn. Close up against the side of the house were several perpetual blooming rose bushes.

In closing, I might mention that I obtained first prize for the best kept lawn in this ward in the year 1909.

Repair the lawn and re-seed if necessary. Dig out dock, dandelion and perennial weeds.



First Prize Lawn

The property of Mr. R. E. Rowe, Brantford, Ont. See above article by Mr. Rowe.

The China Aster and Gladiolus

John Cavers, Oakville

THE China Aster, which, by the way, is not an aster, is one of the flowering plants that has been greatly improved in the past ten years; and its popularity has kept pace with the improvement of the plant. This improvement has been brought about chiefly by the selection of the best plants for seed-producing purposes. There is perhaps no flowering annual so dependent on the quality of the seed for success in its growth as the China Aster. Quality in the seed and continuous growth are the two chief factors in China aster cultivation. The best soil is a strong loam; the best location is a sunny exposure; and one of the best fertilizers is wood ashes.

The chief improvement that has been made in the China Aster in late years is in the form and size of the bloom—not only in circumference but in depth also. The tendency appears to be towards a more ball-like form. This tendency, if persisted in, will have the effect of giving a larger proportion of blooms without the yellow centre, which is the bane of aster growers for cut-flower purposes. Another tendency is to bring the later varieties in earlier in the season. The terminal buds of aster plants should always be removed, and the number of the lateral buds should be reduced to eight or twelve, if large blooms be desired.

The China Aster plant, if it is well rooted and is carefully packed, is one that carries well, and no serious check in its growth takes place even when several days are required for its journey. It is known that these plants have been successfully shipped from Ontario to points in Cape Breton on the east and in Saskatchewan on the west. The plants are inexpensive, and they are well calculated not only to give immediate pleasure, but to further that finer taste for floral beauty that is a growing asset in our national life.

THE GLADIOLUS

The culture of the Gladiolus is apparently on the eve of a great expansion. Many acres are now devoted to its cultivation and increase, but the supply is not equal to the demand. And this demand is based on substantial reasons. The simple planting and easy culture of the corms, the annual reproduction and increase of these corms, the size, beauty of form, and gorgeous coloring of the blooms, the absolute freedom from injury by insects and almost immunity from disease are surely good reasons for its popularity.

Good corn or potato ground will suit the gladiolus. It should have a sunny exposure, and if a plentiful supply of moisture can be given when the buds are well advanced good results will follow. The corms may be planted in rows and grown like vegetables—the rows a foot apart and the corms four or five inches in the row—or they may be planted in groups or beds, the corms five or six inches apart. They may be planted any time in May or June and at intervals of ten days if a succession of bloom be desired. For late planting only large corms should be used; small corms should be planted early. If the soil be light the corms should be planted four to six inches deep, the large corms deeper than the smaller sizes; if the soil be heavy, planting at three or four inches will give better results than deeper planting. A frequent stirring of the surface soil will repay for the time and labor, but it must be shallow working, for the roots are near the surface. A steel rake shortened to about eight inches is a good tool for this purpose, if the corms are planted in rows.

There is a feature about the culture of the Gladiolus that has not been given much attention either in the United States or in this country, but which is especially important in our country, viz., the time of blooming of the different varieties. There is a range of six weeks or more between the very early and the very late sorts. In newer Ontario and in the Northwest Provinces, the early frosts which usually occur in the end of August or early in September will cut off many varieties before they have bloomed. It is cruel treatment on the part of dealers to send corms into these sections of the country that will only be a disappointment to the growers. There are early varieties that will give abundant bloom before the time of these early frosts, but these early varieties must be separated from the later ones for planting in the sections of country referred to.

The Gladiolus is one of the plants that make a flourishing growth in these newer sections, and it is well calculated to brighten the homes of the pioneers; but only early varieties should be sent there. If the Gladiolus is to take its legitimate place in the gardens of this country dealers must give attention to the season of blooming of the varieties sent into the more northerly portions.

Work in a Calgary Garden*

W. R. Reader, Calgary

Annuals I have grown include Ageratum, sown under glass middle of April, Antirrhinum or Snapdragon, Tom Thumb, the ordinary tall variety, and Queen of the North. The two former varieties were not satisfactory, flowering too late to be of much service. Queen of the North is a white intermediate strain, and was most satisfactory, flowering very early, and continuing a mass of bloom till destroyed by frost . It grows about nine inches high, and makes a good second-row plant, but is a little too tall as an edging plant. Anchusa succeeded well sown directly in the open the first week in May. It is one of the purest blue annuals we have; height, 18 inches. Bellis Perennis, the common English double daisy, though only a perennial, is like the Snapdragon, for all practical purposes, an annual in this country. This I did not find very satisfactory. It seemed to suffer badly from the heat and lack of atmospheric moisture, and the flowers became very poor and open-eyed as the season advanced. It might be more satisfactory, perhaps, if planted in shade. The common Marigold succeeded from sowings

Artistic Grounds of Judge Klein, Walkerton, Ontario

A silver spruce and cut leafed weeping maple cedar hedge may be seen in the foreground and a spruce hedge in the rear.

*Extract from a paper read before the Calgary Horticultural Society.

made in the open, but this annual is not, to my mind, worth growing when there are so many better things. The annual Marguerite Carnations, though not so desirable, perhaps, as the perennial species, produced an abundance of exquisitely scented flowers in many shades of color.

Annual Chrysanthemums proved valuable both as bedders and for the window boxes. They were, however, somewhat rank and weedy, and possibly would have been more satisfactory in poorer soil. Clarkia I sowed in the open, but for some unknown reason this failed to come. This year I am sowing under glass. Coreopsis tinctoria grew luxuriantly, but did not flower till late in the season, though sown inside in March. Coreopsis Drummondii, however, under the same treatment produced a profusion of its rich, golden yellow flowers during the whole of the summer months, and was exceptionally useful for cutting. Collinsia bicolor, an annual with lilac and white pea-shaped flowers, was very satisfactory from sowings made in the open. I tried Convolvulus or "Morning Glory," but the blossoms faded almost immediately on opening, owing to the bright sunshine.

The Indian and Japanese Pinks were a great success, and are ,in my opinion, worthy of more general culture here than they at present receive. They vary in color from pure white to richest crimson, while many are beautifully laced and striped. They remain in full beauty over a long period. They are not so quickly affected by dryness at the root, as are many other annuals. The Californian Poppy succeeds in almost every garden . I grew a variety last year called "Rosy Queen," the flowers of which exhibited two very pleasing shades of pink.

EDGING PLANTS

The variety of Golden Feather known as Sutton's Golden Ball made an excellent edging plant. This variety has an exceedingly compact habit, with finely cut moss-like foliage, its great recommendation being that it does not require pinching. Jacobea proved a really beautiful free-flowering annual, producing dense heads of double flowers in white, rose, purple, and crimson shades for a long period. It succeeded in both sunny and shady situations. The African Marigolds grew vigorously and flowered profusely. I found a small single flowered kind, known as "Legion of Honor," very useful as an edging plant. Malva rosea was excellent as a dot plant, growing into a compact bush 2 feet high and covered with large pink flowers. The white Tobacco Plants were very miserable looking objects during the daytime, the flowers closing, and the plant putting on a drooping, dejected and woe-begone appearance generally. This was compensated for, however, by the delicious fragrance they diffused during the evening and night. I tried Nemesia, a well known and popular annual in England, but it did not prove very satisfactory.

I think I need say nothing about pansies, for everybody that has a garden knows how well they succeed here.

Success in Vase Filling

Fred. W. Adams, Toronto

A good compost, with lots of fibre, makes an ideal soil, and the rougher it is packed in the bottom of the vase the better. The best centre piece is Dra-

caena indivisa. Use a size that will throw its leaves well above the rest of the plants. Le Cid and Mme. Barney geraniums have been found to be the most profuse bloomers. Never use but the one variety in a vase, no matter what quality is required. For use around the centre the following are useful; Achyranthes lindenii, coleus fuchsias, abutilons and Marguerites, and anthuricum (Var.). For trailers or creepers around the edge we use Var. Vincas, Ivy geraniums, double Petunias, Fuchsia, "Trailing Queen," Mesembryanthemums (dew plants)), Var. Tradescantia, Lobelia, Alyssum and German Ivy. As much as possible use propagated plants in preference to seedlings, and above all strive for a "riot of color." A vase that has a green appearance is a poor seller, and anything but attractive.

If your garden soil is heavy clay, cold and late, you can lighten it greatly by adding ashes or sand. Coal ashes, though of very little fertilizing value, will aid greatly in this respect. A dressing of lime, five to ten pounds to the square yard, will also lighten up heavy lands.

Growing Sweet Peas

Mrs. H. C. Nicholson, St. Catharines

The sweet peas shown in the accompanying illustration were grown as follows: First, I manured the ground well, and then harrowed it thoroughly. I then took some well rotted manure and forked it in where the rows were to be planted. I worked it over and over to the depth of over one foot, so that I had the soil perfectly pulverized. I then made shallow trenches, about four inches deep, planted the seed about three inches apart, zigzag, which made two rows, and as they grew I drew the soil up to them till the soil was level. I then drove two by two inch stakes at each end and the middle, and corded from stake to stake.

At intervals of two weeks I gave three sowings of nitrate of soda broadcast between the rows.

Instead of spraying water over the top of the peas, I thought that I would try another method of watering. I had five rows, thirty feet long, four feet apart between the rows. I then made a ditch between each row, and turned the hose into each ditch, and filled full of water. I found that way kept the soil cool, and the water seeped through to the roots easily. The peas grew well. You can see the luxuriance by the photo. Why. I had peas galore, the finest that I ever had. A few days before our July exhibition, I covered them with cotton, for the sun scalds the bloom badly here, which spoils them for show purposes.

I may say that I always grow the Spencer type of sweet peas, as I think they have the most delicate colors and the largest blooms. They generally have three and four blossoms on strong stiff stems.

Plants for spring blooming should be generously fed with liquid manure and top dressings of fine bone meal.

Sweet Peas

Grown by Mrs. H. C. Nicholson, St. Catharines

The Care of Lawns

J. T. Rose, Brantford

In the first place, I will take it for granted that your ground is in good condition in regard to drainage. If you have any low spots be sure and build them up by cutting the sod into strips and then rolling them back to the proper level. Your next move is to get some good, rich soil and fill up the opening made until it will be a little higher than the surrounding ground, as it will settle.

For fertilizer, take very rotten horse or cow manure and apply to the depth of an inch or more. Every few days take a rake and stir or spread the manure about so that it will not bleach the grass. When you find the grass getting long and white remove the most of the manure, but do not be afraid of leaving some on, as the grass will soon eat it up.

Some seasons I only apply rich loam, to which I have added some bone meal and wood ashes. This I scatter over the lawn so that you can just see the grass. Every few days I take an iron rake and work it through the grass. I keep my lawn cut very close all season, as I find it grows more compact and has a deep green color. Apply plenty of water and use the lawn mower constantly until the frost comes, so that there will be no brown grass in the spring to spoil the appearance of the lawn.

If you are just starting to fix up your lawn around your new home, by all means secure some good rich top soil, and after spreading it apply some well rotted manure and have it ploughed or dug in—for like everything else, you must have a good foundation to start on. Then level off and sow your lawn seed. When it has grown to the length of say two or three inches, I would start and cut it with the lawn mower to make it stool out.

Fertilizers for the Garden

G. M. Frederick, Peterboro

Fertilizers are being used in increasing amounts each year, and have given good results in spite of the large amount of low grade goods sold the gardener and fruit grower. A good standard formula, useful for all vegetables and flowers, is a 5-7-10 goods, which means five per cent. of nitrogen, seven of phosphoric acid, and ten of potash.

If it is thought better to mix the materials at home a mixture of five parts acid phosphate, five parts bone meal, three parts sulphate of potash, two parts tankage can be used with good results. This should be applied at the rate of from half a ton to a ton to the acre. Work the fertilizer thoroughly into the surface soil at the opening of the season, then make several applications of nitrate of soda at intervals of two or three weeks.

Nitrate of soda can be sown broadcast at the rate of from seventy-five to an hundred and twenty-five pounds to the acre. There is usually very little danger of burning the foliage; but as the leaves of some plants are tender it is safer to scatter along the rows or around the plants.

Where early fruit or vegetables are desired use acid phosphate and potash, with no bone meal, tankage, or stable manure. Bone meal is too slow, and the tankage and manure will decay and provide nitrogen later in the season, thus inducing growth of stock and leaf at the time the plant should ripen up. Apply one liberal dressing of the soluble nitrate of soda early in the season to force the growth of stalk and leaf. After this time the mineral fertilizer, potash and phosphoric acid in the soil will mature the crop. By this method a gardener may place his vegetables on the market a week or two ahead of his competitors. Good judgment is necessary to get the best results, as if too much nitrate is applied or an application is made too late in the season, the plant will run too much to stock and leaf and the ripening of the fruit and vegetables will be deferred.

The above fertilizers can be used with good advantage on flowers, increasing the vigor of the plant and deepening the color of the blossoms. On all foliage plants use nitrate of soda liberally. Where wood ashes can be obtained conveniently use from ten to fifteen pounds in place of each pound of potash advised.

A Beautiful Display of Roses
In the garden of W. J. Smith, Toronto

What to Grow and How to Grow It*

A. G. Wolley Dod, Calgary

AS soon as the cabbage and cauliflower plants have grown about four or five inches high, the soil around the roots should be carefully loosened with a kitchen fork, and then they should be pulled up and transplanted again in the frame, about four or five inches apart, care being taken, however, to see that the soil is good and damp before doing so, as if too dry it will all fall away from the roots. Make a hole with a blunt stick and press each plant firmly into the soil slightly deeper than it was before, and give a good soaking of water. You may find that all your plants will not be ready to transplant at the same time, as some will be bigger than others, but pull out the biggest all the time so as not to let them get too crowded or they will grow weak and spindly. Cabbages in this way will very rarely wilt when finally put out in the garden, if the same care is used in having the soil around the roots good and moist. If the weather is very hot when doing this transplanting it is a good plan to whitewash the glass, so that the sun will not wilt the plants. A handful of lime mixed with a little glue or size in a basin is enough for this, and it is best to whitewash inside the glass, as if done on the outside it will get washed off in heavy rains.

Your radishes should be fit for use in about three weeks time but the lettuce will be longer before it is ready to use. If your frame is big enough, sow some more radish seed at intervals of a fortnight, as then you will have a succession for the table.

When your celery plants are big enough, prick them out in the frame about four or five inches apart, or they

*Extract from a paper read before the Calgary Horticultural Society.

may be pricked out in shallow boxes, and when they are ready to transplant outside dig a trench about a foot or eighteen inches deep, leave the soil in the bottom loose, put about three inches of well-rotted manure in the bottom, and tread down firm, and cover this with about three inches of soil. Now transplant your celery and apply plenty of water. As the plants grow, draw the soil around the stalks, taking care not to cover the tips of the leaves; when doing this hold the tops well together with one hand and draw the soil well around the plants with a small hoe or other suitable instrument, continue this operation at intervals as long as they continue to grow, banking up the plants after the trench is filled. Some people plant their celery on the flat, but by planting in a trench and banking up in this way one will find that the celery is much more crisp and tender. I find a good way to do the final planting out, is to get an old baking tin and lift each plant separately with a kitchen fork, with as much soil adhering to the roots as possible, place carefully in the tin, and carry to where they are to be planted. The ground to be planted should have been previously marked out and holes dug with a trowel about eighteen inches apart.

TRANSPLANTING CABBAGE

In planting out your cabbages, if possible choose a dull day, and press them firmly down again, slightly lower than before, and leaving a small hollow around the stem so that the water will drain down to the root. After planting give a soaking of water, even if it is raining at the time. The time to transplant cabbage and cauliflowers is from the 24th May to the middle of June. As soon as the cabbages have been planted out, plant a few seeds of cucumber in different parts of the frame, and shut the frame up or very nearly so, as in the first stage of growth cucumbers want plenty of heat, and never let them get too dry. As soon as the plants have made two or three leaves, thin them out to not more than two plants together, but it does not matter if the seeds have not all come up as one in a place and four in a frame is quite enough. If you have chosen a good frame variety, such as Telegraph, you should have all the cucumbers you will require after they begin to bear. Those, however, who have room for a separate frame from the start, will obtain cucumbers much earlier by sowing in April.

To obtain cucumbers it is necesary to propagate the flowers, or the young cucumbers will not start. I have often been told by people that their cucumbers vines have plenty of flowers, but that they never can get any cucumbers. This is owing to the fact that they produce two distinct kind of flowers, one which will never produce a cucumber at all and the other which will grow into a cucumber if properly propagated. The flowers are easily distinguished, as one grows on a thin stalk, and the other grows out of the end of a very small cucumber.

In order to make these latter grow, get a small camel's hair brush and insert it in the flower with a long stalk, and twist it around. This will collect all the pollen. Now insert the brush in the centre of the flower with a small cucumber on it, and twist it around again. The pollen from the first flower will adhere to the second, and a few days later it will begin to grow. These flowers should be gone over every day as they soon die if not propagated. One will often find that the first flowers that come out are the barren ones, and sometimes these continue for a week or more before any of the others appear.

I always like to make my frame in two distinct sections, as I use one for vegetables and one for starting a few flower seeds. By making your frame in sections in this way you can keep the flower side closed more or less according to the weather, whereas the cabbage side will require as much ventilation as possible or the plants will become too spindly. These flower plants will want transplanting in the frame in the same way as the cabbages in order that they may make stronger plants for finally planting in the garden. This section of the frame may also be used as a cucumber frame after the plants are all transplanted.

FLOWERS FOR BEDDING

We now come to the question of what to grow in the way of flowers for bedding out. Of course a great deal will depend upon the tastes of the individual grower. There are a great many annuals that must have an early start in moderate heat, as if sown in the open border they take too long before they reach the flowering stage, and by utilizing a frame one is enabled to sow them so much earlier. I should recommend a few seeds of the following, the choice of the variety being left to the grower: Aster, Dianthus, Lobelia, Pansy, Snapdragon, Ribiscus, Tobacco-Plant, Petunia, Phlox, Stocks, Verbena, Zinnia.

These should all be started in a frame. There are of course many others, but these are all favorites and comparatively hardy, the last in the list being perhaps the most tender. These will all require plenty of room when transplanted to give the plants an opportunity of spreading. The Lobelia, however, is the exception in this case, as being an edging plant it can be planted fairly close together.

Intensive Gardening

H. F. Kennedy, Lyons, Ont.

(Continued from last issue)

The third point then is constant cultivation and attention to growing plants. Now, a word about arrangement of plants and successive plantings. Remember, no theories but practical experience. During the first week in July I dug the potatoes and the balance of the potato ground was worked up and enriched. On this strip of ground I sowed turnips and winter radishes, resulting in an excellent crop of both.

Young Tomato Plants

Grown by Mr. Pearce Smith, Grimsby, Ont.

In another part of the garden I planted early in April, lettuce, radishes and spinach. These were used up by the first of June. Then in the same ground I planted Golden Bantam sweet corn, which yielded excellent ears about the end of August. Around the fence which encloses the garden I have a row of strawberries, which yield us all the fruit we require, both for table use and also for canning. Besides these, I have cucumbers growing up on trellises like grapevines, thus taking up scarcely any room

in the garden. I also find room for a few choice tomato vines, wonderberries, peanuts for the children, a couple of hills of musk melons, a few summer squash (bush squash take up no more room than a tomato vine), a few lima beans, some growing on poles eight feet high, others on bushes (the Fordhook strain) and some garden wax beans besides.

I always sow some lettuce seed in the row, along with the parsnips and vegetable oysters and parsley. These latter are slow in coming up, and often the weeds get the start of them. The lettuce germinates quickly and shows the row so you can get after the weeds long before the other seeds are up. The lettuce grows rapidly and can be pulled and used before the room is needed by the other vegetables. I always find room for a few rows of carrots, beets and mangels for my hens. Here and there along the rows I plant a cabbage or cauliflower which seem to do extra well and get along very peaceably with their neighbors.

Besides all this, last year I had a beautiful bed of crocuses, tulips and narcissi, regular spring beauties, and later on a magnificent hedge of sweet peas, and a bed of exquisite asters, with here and there another flower of rare beauty.

All this goes to show that even on a very small plot of ground, with careful planning, a good selection of seed, and constant cultivation, an abundance of the useful as well as the beautiful can be grown.

Eighty-Two Varieties of Vegetables on a Small Lot*

Geo. Baldwin, Toronto

HAVING hardened off your plants, start at the top end of your garden by planting according to your plan, either the plant which you have raised in the hotbed or the seeds which did not require raising in heat. If the ground be very dry, give each cabbage and tomato plant a half pint of water, and shade from the sun for a day or two until they get acclimatized.

Plant the seeds of your squash, marrows and garden cucumbers in hills that have already been prepared, three feet apart each way, by digging out the hole about fifteen inches and putting in well rotted manure, covering same over to the depth of four inches, leaving the mound about one and a half inches higher than the level of the ground. Press your seeds in edgeways about one-half inch deep and firm down, and scattering a few radish seeds in each hill for the insects to feed on, otherwise they would eat off the young leaves of squash or melons.

PREPARING THE CELERY BED

The celery bed should be prepared in the following manner: Mark off with string the size of the bed required. In this instance three feet six inches wide by twenty-one feet long. Trench north and south and shovel out all the earth to a depth of six inches, throwing earth along each side of the trench. On top of these ridges is an ideal spot for radishes, provided you keep them moist. Then fill up to level of earth again, with good rotten manure, digging it in deep and mixing it up thoroughly. Then throw up two inches of fine sifted soil on top of this, leaving your trench four inches deep, planting your three kinds of celery in rows nine inches apart and six inches apart in rows, leaving twelve inches on each outside of rows.

*(Continued from last issue)

Prepare the hills for your tomato plants in exactly the same manner as you did for squash, marrows, etc., putting the plant in deep. Sow seed of pickling onions in the open, on June 20th, very thickly, and do not thin out, but let them push one another out of the way. All your planting is now done, excepting the ornamental tomatoes, which, by the way, are the best flavor. Plant these up against your north fence where they will get the sun as much as possible, training them up the fence (Chicken netting is a good material to train them up against.) Give each plant about four feet of space and they will cover your fence entirely and will grow to a height of six or seven feet, producing fruit up to the top, and look very pretty, besides covering up an unsightly fence.

The above is mostly play in my estimation compared with the work that follows to make a success of the crop. Get your hoe sharpened, repair the hose and all garden tools, and I will give further directions for caring for the garden in the next issue of THE CANADIAN HORTICULTURIST.

Onion Culture

To grow onions from seed for profit you should have good ground—a sandy loam with loam predominating. It should be made rich by a heavy coat of manure, or plowing under a crop of red clover. Keep the ground well worked with cultivator or disc the rest of the season, so as to kill all grass roots and foul weeds.

In the fall or early spring cover the ground again with a fair covering of well rotted manure. As early as possible in the spring plow very shallow or work the manure in with disc or cultivator. By so doing you will preserve moisture.

PREPARING THE SEED BED

Prepare your seed bed by using a heavy roller, harrow well, then use the plank scraper or light roller. I prefer the scraper as it gives a nice mellow, smooth seed bed. In choosing seed, select nothing but No. 1 seed, even if the price is somewhat higher, for you will receive better results. Yellow Globe and Danvers are the favorites for market, although there is a growing demand for red onions.

Do not sow until the ground is thoroughly warmed up. Sow in drills from twelve to fourteen inches apart, as that is sufficient space to work in.

CULTIVATION

When the onions make their appearance use the hand harrow; by it you break the crust that sometimes forms, and you allow the air to work through the ground, and it also kills a great number of small weeds.—A Grower.

Intensive Cultivation

Growing potatoes between the rows of trees on the fruit ranch of Cooper Bros., Grand Forks, B. C.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
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Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed.
THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

MOTHERS' DAY

Three years ago a movement was started in Philadelphia to observe the second Sunday in May each year as Mothers' Day. The movement was taken up with much enthusiam through the United States and rapidly spread all over the country, but as yet it has received but little support in Canada. The object is to set apart one day in each year for the special honoring of your Mother. To show such honor and sentiment in a material way the plan is to induce all persons to send boxes of flowers to their mothers as presents and to wear flowers as a token of respect. No special flower is needed although the white carnation has probably been the most popular one.

The Horticultural Societies can aid this work by inducing the Mayors of their town to issue proclamations that the second Sunday in May will be kept as Mother's day. The clergymen of all denominations should be interviewed and asked to preach sermons on this subject on that day. The Women's clubs and fraternal societies should also be appealed to for aid in this work.

IMPROVE THE COUNTRY HOME

In our last issue Mr. W. T. Macoun, Dominion Horticuturist, made an eloquent plea for the better observance of Arbour Day and compares the appearances of the town and city home with the country home much to the disadvantage of the country. He gives the chief credit for the improved appearance of the town homes to the horticultural societies.

To us the remedy for this state of affairs is very simple, just extend the horticultural societies out through the country when the same agents that have worked improvements in the town homes will do the same for the country home. Through the liberal premiums offered one year a vine is planted, another, an ornamental shrub. The next year flower seed, bulbs and rose bushes are obtained. These plants together with the plain and simple instructions given in THE CANADIAN HORTICULTURIST which is furnished free to members by the majority of the Horticultural Societies have worked wonders in the changed appearance of the town home and will do the same in the country if the membership is extended to include all country districts.

RENTING ONTARIO ORCHARDS

Several companies composed of English capitalists have rented a large number of orchards in Ontario for terms varying from seven to ten years. On the whole this new departure will probably be a benefit to the fruit industry as the education which will be given by having a number of orchards properly pruned, sprayed and cultivated in a district will be of great value to the community.

Orcharding, owing to the great increase of insect pests and fungous diseases has of late years become a business by itself. Where a farmer has not sufficent executive ability to manage two businesses he had better let one go. In many cases he would be better off to rent the farm and attend to his orchard himself but if he wishes to keep the farm in his own hands it is certainly a wise move for him to rent his orchard, for a neglected orchard will not produce as large a revenue per acre as a well worked farm.

But it seems a penny wise and pound foolish policy for men to rent out good orchards of from six to ten acres because as they say they would have to buy spraying outfits and hire another man to do the work. Counting time lost by going to and from work and from unfavorable weather it is a safe statement that the farmer could care for his orchard for one half the money it will cost the apple companies. If the companies can pay two and three dollars a day for men to prune the trees and give the owner from three and a half to four and a half dollars per day for cultivating, surely it would pay the farmer to keep the orchard in his own control and hire the men himself when he would have them on the farm ready to take hold of farm work when needed.

If the farmer will not care for his orchard properly he had better take the first chance that he can to rent as in this case he will receive a revenue each year and have the orchard given back to him at the end of seven to ten years in a much better producing state then when he rented it.

PROTECT THE BIRDS

Birds are of great value to the fruit grower, as they live almost entirely on insects, and thus keep them in check and prevent great loss. A few birds cause some damage to fruit and other crops, but the injury is trifling when compared with the good that is done.

It is a great mistake to sacrifice a hundred birds for the damage that one may do. Any man who grows fruit or vegetables, or even has a kitchen garden, should have a common knowledge of the habits of birds. If a blackbird is seen in a grain field it does not necessarily follow that he is doing harm. Woodpeckers are often shot in orchards when a careful investigation would show that they are destroying injurious insects.

There are many instances where birds have been killed for destroying fruit when an examination of their stomachs has shown that they were eating more injurious insects than fruit. Even though some birds may eat a little fruit it is a small part of their diet. During the breeding season they live and rear their young almost exclusively on insect food.

Birds are the most valuable asset of the orchard or the farm. Protect them.

THE VALUE OF SPRAYING

The demonstration orchards conducted by the Department of Agriculture last year proved beyond the shadow of a doubt the value of pruning and spraying of orchards. One of the most striking illustrations of the gain produced by spraying was in the orchard of Mr. John Osborne, Dunedin.

This orchard had never produced over fifty dollars worth of apples but by the expenditure of forty-eight dollars and thirty cents in pruning, spraying and cultivating the orchard, and paying seventy-five cents a barrel for picking and packing, the apples sold for two hundred and thirty-two dollars and ninety-seven cents, nearly five times the highest amount that was ever received for the orchard in previous years.

Surely after evidence such as this every fruitgrower and farmer will invest in a spray pump and see that his orchard has proper attention. Not only is spraying necessary for the best results, but it must be reinforced by proper pruning, thorough cultivation and some system of co-operative disposal of the fruit.

GARDENING FOR CHILDREN

Children are always greatly interested in seeing things grow, especially if it is some plant or animal that they can take full care of. Interest the children in the work of improving their school grounds. As far as possible let each child have a garden for himself. Nothing will make a child like school more than beautiful school surroundings, especially if he has had something to do with the making of them.

The influence of this work will be far-reaching. The children will make better citizens and later in life when they have homes of their own. the results of this early training will be seen in beautiful flowers, well arranged lawns and tasteful homes. Resolve this spring to have the school grounds in your district the best in the vicinity and the grounds around your own home even better.

ESSAY COMPETITION

In another column will be found particulars of the essay competition conducted by the Ontario Horticultural Association. This competition has been rendered possible by the generosity of Messrs Herman Simmers, Toronto, and Mr. R. B Whyte, Ottawa, who have each donated $25.00 to be given in prizes and medals for the four best essays on "My Favorite Garden Flower and How I Grew it." Such liberal prizes should bring out a great number of essays, and those who do not win prizes will be well repaid for the work involved by the pleasure obtained from writing down all the work done in the garden, which will act as a record for future years.

THE VALUE OF BEES

Articles in this and previous issues have shown the great value of bees in an orchard. The transfer of pollen is due almost entirely to insects, and of these bees are the most important.

Even under the most favorable circumstances great numbers are required to do this work in localities largely devoted to fruit growing. During wet, cloudy, or other unfavorable conditions of weather, the bees do not travel far from the hive, and if the nearest bees are several miles away, very little good will be obtained from the bees, and a large proportion of the bloom will be unfertilized and either drop or form mis-shapen or cull fruit.

The fruit grower who has hives in his orchard will profit most in unfavorable weather and will have the most perfect fruit. In addition to the gain in the yield and quality of the fruit, there is an added profit from the honey produced, which is always saleable. It pays to keep bees.

TREE PLANTERS

While in many ways we think that we are ahead of our cousins to the South, still in some respects we might profit by their example, one of which is in copying the organizaton of boys, called The Tree Planters of America, which has been started in the United States to promote systematic tree planting in profitless pastures, nooks, ravines, on useless or worn out plots, or partly denuded forest areas, and in every place where the soil is not yielding a reasonable contribution to the general welfare.

Canada has thousands of just such places, many of them near towns and villages. A little time spent in planting trees would change unsightly dump grounds and weed patches into beautiful groves. Let us have a lodge of the tree planters of Canada in every town and village and at every country school.

PUBLISHER'S DESK

The illustration on the cover of this issue shows a peach orchard in bloom in the vicinity of St. Catharines, Ontario, the noted fruit and truck district, which the citizens proudly call the Garden of Ontario. We are indebted to the courtesy of the Grand Trunk Railway Co., for the privilege of using this photograph.

We should be pleased to receive good sharp and distinct photographs showing fruit or garden scenes for publication in THE CANADIAN HORTICULTURIST, the best of these to be used on the front cover, the others that would make good reproductions to be used on the inside pages. Send us the best photographs you have. If you wish them returned write the word return on the back of the photograph together with your name and address.

Many new subscribers commence receiving THE CANADIAN HORTICULUTAIST with this number. We extend to them a hearty greeting, and our only regret is that we were unable to commence all of these subscriptions with our Garden Number. We printed what we thought was an ample supply of copies of this number but the demand was so great that the issue was practically exhausted within a few days after it was off the press. The subscriptions still continue to come in at a rate to keep our circulation department busy. A large number of our readers are taking advantage of the splendid premiums offered for the securing of new subscriptions. Have you secured one of these premiums? We are unable to give a full list and descriptions of them in this issue but will mail you a premium list by return mail if you write for it. It includes two splendid climbing roses, a collection of flower and garden seeds, and several collections of flowering bulbs which are sent free of cost to persons who secure new subscriptions to THE CANADIAN HORTICULTURIST at 60 cents for each subscription. This is an exceptional offer. Time is passing and you should take advantage of it quickly. Write for our premium list and while you are waiting for it show your copy to your friends and get them to subscribe. They will readily do so when they see the good things it contains. Be sure and get a premium.

In this issue we are inaugurating a new department, which we have called "Society Notes." This will be devoted to short pithy reports from the officers of the different Horticultural Societies, throughout Canada. We want to make THE CANADIAN HORTICULTURIST more truly fully the organ of the Horticultural Societies, and with this end in view would be pleased to have the Secretaries send us brief notes of what they have found to be of the greatest benefit to them in their work. Let us have particulars of how you manage your lawn competitions. Do you give the school children seeds and plants and later give prizes for the best cared for gardens? Do you take an interest in the establishment of gardens in the school grounds? What influence has the Society had in beautifying the town generally, such as the proper care of parks and cemeteries and school grounds and the planting of vines around churches, public buildings and factories.

We would suggest as a topic for the June Horticulturist that you write on "The Benefit that the Horticultural Society Has Been in Beautifying our Town." Make your letters short and to the point.

SOCIETY NOTES

We invite the secretaries of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Peterboro

Peterboro is in the midst of an energetic campaign to increase their membership. Mr. Frank Wise, the Supt. of Little Lake Cemetery, the genial Secretary, has taken a great interest in the matter and is working for three times the present membership before the end of next month. The Society has made great use of a publicity campaign in the local papers, who are very friendly and will publish anything written up with regard to the improvement and beautification of The Electric City. As a means of obtaining this object they have books of tickets printed which will be given to a large corps of canvasers who will call on practically every citizen. In this matter Mr. Wise has enlisted the assistance of a committee of interested ladies, who will take charge of the membership campaign. A set of attractive window cards explaining the object have been printed and placed in the windows of all the business houses. The society is making a special offer of plants and bulbs to members who join before the end of May, as every member obtained now adds just that much more to the Government grant next year. They have adopted as their slogan "Beautify Peterboro," and would ask the Societies in other places to watch them grow.

Guelph

Mr. Jas. Anderson, the president reports that they have had a very successful season. They have over 150 members which is an increase over last year but as Guelph has a population of about fourteen thousand there is room for a still larger increase the present year when the membership will probably be more than doubled.

The society is doing a good work in giving prizes for the best lawns as well as kitchen gardens including the production of fruit and vegetables.

It also gives prizes for school children's lawns and gardens and where they do their own work supply them with seeds, geraniums and other plants in pots. The society also filled window boxes for the windows of the City Hall, the Post Office and other public buildings.

The members of the Horticultural Society are furnished with THE CANADIAN HORTICULTURIST as well as a valuable list of plant, bulb and seed premiums.

Thornbury

Mr. Geo. Wright, the energetic Secretary of the Thornbury Horticultural Society, has instituted a new department which might be copied by a number of other societies. For a very small fee he sees that the collections for the membership tickets are made and that the plants and vines chosen as options are promptly delivered when received. Before this owing to carelessness or lack of time these plants were frequently allowed to remain on hand for days or even weeks so that when the member eventually called for them they were badly dried up and often gave very poor satisfaction. By the present system, they are planted immediately. The members are better satisfied and are more likely to renew their membership tickets the next year.

Barrie

Mr. Geo. Vickers, Pres. of Barrie Society, although busy with the cares of a large store at Easter time had time for a short description of the benefits conferred upon the town of Barrie by the Horticultural Society. He promised to write an article on the place THE CANADIAN HORTICULTURIST should occupy as the official organ of the Societies in the Province.

Whitby

Mr. H. W. Wilcox, Sec. of the Whitby Horticultural Society reports that the interest in their work is steadily growing. Since he has resided in the town he has seen much improvement in the homes and surroundings of the people and much of the credit for the improvement can be given to the Horticultural Society. Last year vines were given to the factories, schools and churches which in a few years will add greatly to their appearance.

Perth

We are in receipt of a printed copy of the report of the convention of the Ontario Horticultural Association as given to the Perth Horticultural Society by its delegate the Rev. A. H. Scott, M.A. This is a method of presenting reports which might be followed by other Horticultural societies.

Frequently valuable reports of meetings prepared by delegates after an expenditure of considerable time and trouble, are practically wasted, owing to unfavorable weather or other competing meetings causing a small attendance at the meeting when the report is presented. Thus very few obtain any benefit from the report. By having the reports printed all the members can be made familiar with the contents of the report. When societies are willing to incur an expense of ten or twenty dollars or more sending delegates to a convention some effective method of distributing their report should be adopted even if it does cost a few dollars more. The annual government report cannot take the place of a special report by local delegates.

Essay Competition

Through the generosity of Mr. Hermann Simmers of the firm of J. A. Simmers, Limited, of Toronto, who was the first to make the suggestion, and Mr. R. B. Whyte of Ottawa, the President of the Ontario Horticultural Association, each of whom has donated $25.00, it is proposed to offer prizes for the best essays submitted for competition through the Horticultural Societies on the subject of "My Favorite Garden Flower and How I Grow it." In connection with the proposed competition the following rules have been decided upon:—

1st.—That the essays shall not exceed one thousand words in length.

2nd.—That they shall be written by members of Horticultural Societies, or their sons and daughters who are twenty-one years of age or less.

3rd.—That the essays shall be written on one side of the page only and forwarded through the Secretary of the local Horticultural Society to H. B. Cowan, THE CANADIAN HORTICULTURIST, Peterboro, Ontario, not later than August 15th, 1911.

4th.—That the local Horticultural Societies shall have the privileges of reading the paper submitted through it at any of their regular meetings prior to August 10th, 1911.

5th.—That four cash prizes shall be offered as follows, $10, $7, $5 and $3. In addition to the four cash prizes four medals will be given to the four winners.

Beekeeping for Fruit Growers

Geo. W. Tebbs, Hespeler, Ont.

The question has often been asked, "Will it pay to buy bees simply for the benefit to be derived from fertilization of the flowers, and where it is not intended either for lack of time, or because of lack of interest to properly care for them?" I would reply at the outset that it is bad for the bees. They deserve better treatment at our hands, for no other little creature gives such abundant appreciation of, say, ordinary care than do our litle pets, the honey bees.

As an apiarist "crank," of course, I am strong on proper attention for them, and see no reason why the people who simply want to use them for fertilizing blossoms should not raise instead humble bees, or some of the many types of flies, which would not prove to be so determined in their efforts to make one see and feel the point of interference with their business.

Let our fruitgrowers note that the "season" is often controlled not so much by the presence of frost or not, as by the fact that dull, blossoming days, when little or no cross fertilization takes place by the aid of nature's carriers, the bees.

I would go just a step further and say to the man who wants to get the very best from his orchard, that bees are not only helpful, but are indispensable. Don't spray your trees when in full blossom and so kill your best friends. Besides, it is a criminal offence in this province. But if you keep bees take care of them. and your wife will say that jars of fruit and jars of honey look very nice on her pantry shelves, side by side.

Send fruit crop prospects for publication.

ANNOUNCEMENT

WE DESIRE TO THANK OUR MANY CUSTOMERS FOR THE SPLENDID SUPPORT THEY HAVE GIVEN US THIS SEASON, AND TRUST THAT THE NURSERY STOCK WE HAVE SUPPLIED PROVES SATISFACTORY. LAST YEAR WE DID BUT A SMALL BUSINESS, AND DISTRIBUTED OUR TREES AMONG THE MOST CRITICAL BUYERS IN THE COUNTRY. THIS YEAR THESE PEOPLE CAME BACK TO US,—THEIR FRIENDS BOUGHT **PEDIGREED TREES** TOO. TO-DAY WE HAVE THE BEST CONNECTION IN CANADA. WE STRIVE TO GROW PERFECT TREES. OUR YOUNG STOCK HAS COME THROUGH THE WINTER IN FINE CONDITION, AND WE SHALL HAVE A LARGE STOCK ON HAND FOR FALL TRADE.

AUBURN NURSERIES
QUEENSTON, ONT.

GRASSELLI
ARSENATE OF LEAD

Arsenate of Lead is being used more and more in the fruit centres of the province of Ontario. The question that interests every fruit grower is this:

Is there Difference in Arsenates of Lead?
Yes. There is a big difference.

Let us suggest some points which we believe every grower should consider before placing an order for Arsenate of Lead:

1st. You wish an Arsenate of Lead that will not burn the foliage

2nd. It is desirable that an Arsenate of Lead mix readily, yet retain its adhesive qualities.

3rd. An Arsenate of Lead should contain the proper killing power.

Grasselli Arsenate of Lead contains no free acids or adulterant ingredients, contains a very low per cent. soluble Arsenic, and we have yet to learn of a case where it has burned the foliage, even though it may have been used double strength. It will mix readily and has a reputation for **adhesiveness** and **high killing power.**

Grasselli Arsenate of Lead has been used in the Niagara, Oshawa, Picton, Wellington and other districts for the past several seasons, and with every success.

Write us for prices.

For Sale by ROBERT THOMPSON, President

St. Catharines Cold Storage and Forwarding Co.
St. Catharines, Ontario

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND, OHIO

The Gladiolus

Campbell Bros., Simcoe, Ont.

In drawing up plans for planting the garden, space should be provided for gladioli, ever increasing in popularity. This is largely due to the work of the hybridist in improving the quality of the flower, and lowering the cost at which good varieties or strains can be procured. For table decoration during its season, nothing equals the gladiolus, and it possesses the additional merit that large quantities of bloom can be gathered from a small piece of ground. Canada formerly imported all her corms, but now a good many acres are grown in this country, largely for export.

PLANTING

They may be planted quite early, as soon as the soil is dry; the earlier they are planted the earlier they will bloom, and the corms will have a longer season to mature. They may be planted in succession up to June, thus prolonging the season.

Mature corms should be planted not less than 4 inches deep, and on light soils; some plant 5 or 6, the effect of this being to give support to the stem and lessen the danger from wind storms. Always plant in full exposure to the sun; they do not thrive in the shade. They do fairly well in any kind of soil, but prefer a rich, sandy loam.

As with all garden crops, fertility is best maintained by working into the soil well decayed stable manure during the fall. Commercial growers plant quite thickly, ten to thirty to the foot, but where fine spikes are wanted, they should be given more room by planting in a row, say three to six inches apart.

SUMMER CULTURE

Summer culture consists simply in keeping the soil well stirred, and in continued dry weather artificial watering must sometimes be resorted to, as they are impatient of hot, dry weather. The spikes should be cut when the first flower opens and placed in water. By shortening the stem and renewing the water daily, the spikes will last a week or more.

Dig the corms in October, or as soon as the plant is ripened up, dry a little and store in trays in a frost proof cellar. They can be cleaned up any time during the winter, and prepared for planting in spring.

New Regulations Regarding the Destructive Insects and Pests Act

The number of ports at which nursery stock may be imported has been increased and the time limit extended in a number of instances.

The amended regulations governing the importation of nursery stock under the act to prevent the introduction of insects, pests and diseases destructive to vegetation provide that nursery stock, which is not exempted entering Canada, shall be imported only through the ports and during the periods mentioned below.

Vancouver, B.C., from 1st October to 1st May; Niagara Falls, Ont., from 1st October to 15th May; Winnipeg, Man., and St. John, N.B., from 15th March to 15th May, and from 7th October to 7th December; Windsor, Ont., and St. Johns, Que., from 15th March to 15th May, and from 26th September to 7th December. At these

MAY

Is the busiest month of the year with Garden-makers. We shall be glad to help these busy men and women by sending, carriage prepaid.

Asters: Queen of the Market, White and Pink at 40c per 100; Lavender Gem, Royal Purple, Branching White and Crego Pink at 50c per 100.
Balsams at 60c for 10.
Antirrhinum (Snapdragon) Arctotis Grandis (African Daisy) Salvia, Scabiosa, and Stocks at 75c for 10.
Gladiolus (Groff's Hybrids) 10 for 25c; 25 for 55c; 100 for $2.15.
Kniphofia (Flame Flower) Var. Pfitzeri, each 20c; 10 for $1.50.
Yucca var. Filamentosa, each 25c.
Shasta Daisies, blooms 4 to 4½ inches across, 25c each.
Please send postal note with order.

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OAKVILLE, ONTARIO

STRAWBERRY PLANTS

For
Choicest Plants
of
Well Selected Varieties
at
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Prompt Delivery
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ONTARIO NURSERIES
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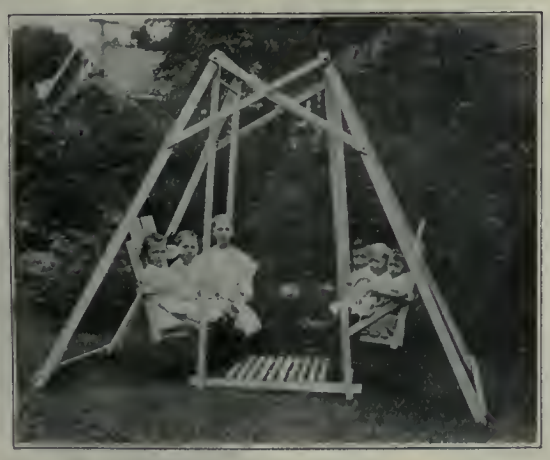

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C. H. D. BACH, Manager, The 1900 Washer Co., 357 Yonge Street Toronto, Ontario. The above offer is not good in Toronto, Winnipeg or Montreal and Suburbs—Special arrangements made for these districts

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Write to-day for Anniversary Catalog describing our entire line including potato planters, cultivators, sprayers, diggers, orchard and other tools.

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HANGING BASKETS
SAUCERS AND
STRAIGHT PANS
Canada's Leading Pot Manufacturers

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The Clipper

There are three things that destroy your lawns, Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out.

CLIPPER LAWN MOWER Co.
Dixon, Illinois

points of entry the importations shall be fumigated. Importations by mail shall be subject to the same regulations.

All nursery stock originating in Japan or in any part of the States of Vermont, New Hampshire, Maine, Massachusetts Connecticut and Rhode Island, shall after fumigation, be subject to inspection as provided by the regulations of the Destructive Insects and Pests Act.

Nursery stock not exempt under the following regulations and originating in Europe, shall be imported only through the ports and during the periods mentioned above with the addition of the ports of Halifax, N.S., Sherbrooke, P.Q., and Montreal, P.Q., through which ports such European stock may enter from September 15th to May 15th.

In the case of nursery stock from Europe, Japan or the states of Vermont, New Hampshire, Maine, Massachusetts, Connecticut or Rhode Island passing through the ports of Vancouver or Winnipeg, the inspection is made at the port and not at the destination as is the case with stock passing through the eastern ports.

The following vegetation and florists' stock is exempt from fumigation and may be imported at any season of the year and through any port without inspection:—

Greenhouse grown plants, including roses in foliage which have been grown in pots up to three inches in diameter. A certificate that the plants have been grown under glass must accompany the invoice and shall be signed by the consignor.

Herbaceous perennials, herbaceous bedding plants, cottonwood or Necklace Poplar (*Populus deltoides*) when shipped from and grown in Dakota or Minnesota.

The port by which it is intended that the nursery stock shall enter must be clearly stated on each package. All persons importing nursery stock, except such stock as is exempt from fumigation and inspection under the above regulations, shall give notice to the Dominion Entomologist, Experimental Farm, Ottawa, within five days of despatching the order for the same and they shall again notify the Dominion Entomologist on the arrival of the shipment in Canada.

The full text of the Act may be found in issue of THE CANADIAN HORTICULTURIST for July, 1910.

Items of Interest

There is not much doing here as good fruit is scarce. Home grown fruit nicely packed brings good prices to those fortunate enough to have it. Alexanders bring one dollar per box. Baxter one dollar fifty cents in Charlottetown from our own merchants. Alexanders keep well here and pack nicely. The Baxter is specially good in flavor this year.—J. A. Moore, Hazelbrook, P.E.I.

There has recently been organized in Tilsonburg a Fruit Growers' Association with a membership of about fifteen which number is likely to be largely increased in the near future. We are fortunate in securing for president, Mr. A. L. Scott, a gentleman of great influence in the community and one who has had large experience in municipal matters.

He has recently purchased a farm and intends to plant 40 acres to fruit, apples, cherries and peaches. We are also fortunate in securing for Secretary Treasurer a graduate of Guelph Agricultural College in the person of Mr. George Elliot.—R. H. McDowell, Tilsonburg.

Quality Butter

That's the kind you make with Maxwell's "Favorite" Churn.—

Maxwell's "Favorite" is used all over the world—in Denmark, the butter country of the world—in the United States, in spite of high tariffs—and in every Section of Canada. Our Agricultural Colleges and Govt. Inspectors recommend it, because it is the finest butter-maker in the world.

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The Insecticide that kills plant Lice of every species

You can depend on it for positive results, without fear of failure or dissatisfaction.

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An infallible remedy for mildew, rust and other fungus diseases. A clean, safe and easily applied spraying material, particularly adapted for the greenhouse. ——FOR SALE BY——

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Wholesale Fruit, Bulb and Seed Potato Specialist
FOR
FRUIT TREES of all description, Gooseberry, Currants, Strawberries, Raspberry Canes, etc.
BULBS—Daffodils, Narcissus, Tulips, etc., English grown.
SEEDS of all descriptions, including all the best varieties in Potatoes.
NURSERY STOCK, such as Privet, Quick for hedges, Herbaceous Plants, etc., etc.
CHRYSANTHEMUMS, all best varieties in stock.
State requirements, special quotation will be given
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The result is that last year we sold far more than ever before. Could you ask for a better proof of quality?

Don't take chances! Get the seeds you know will turn out right—Ewing's Reliable. Send now for our Illustrated Catalogue, and if your dealer hasn't Ewing's order direct from us.

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It dries them up.
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Every day there are pictures right at home that are worth the taking—pictures of the family that will always be cherished, pictures of stock and crops and buildings that will always be of interest and value.

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Vick's Violet King, Mikado White, Mikado (Rochester) Pink, Vick's Early Branching, Rose and White, 20c per dozen, $1.00 per hundred.

Vick's Branching Pink, White, Rose, Lavender Semple's Pink, Royal Purple, Daybreak and Purity, truly the aristocrats of the aster family; 15c per doz., 75c per hundred; packed and labeled separately in wet moss. All plants sent by express and guaranteed to arrive in good condition. Express prepaid on orders over $2.00. Remit by money order.

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SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb, Perennial Celery, Write for Catalogue.

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To own a Gourlay Piano is to be proud of your piano. If you are a musician, the sympathetic bond between you will be strong indeed, for a Gourlay piano responds to every mood of the player. There is a crispness and delicacy of tone for the daintiest improvisation and a richness and volume for the most exacting bravura passages.
If you are not a player, but a lover of music, the pleasure of your friends' enthusiasm will more than repay you for the amount of your investment, to say nothing of the extra years of service over an ordinary piano. Write for Catalogue and prices.
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You've got to give it to them in some way, and the
Quickest—Cheapest—Cleanest
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Nitrate of Soda

Because: The Nitrate will act at once. It is the form of nitrogen the plant may take up without previous or delayed soil nitration, All its nitrogen is available. It is pure plant food. It is as clean to handle as sand.

It will pay you to top dress your meadow with 100 lbs. per acre, and to add some Nitrate of Soda to your complete fertilizer.

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and you hold the moisture in the ground. Cultivate shallow or deep as the crop needs it and you release the forgotten or unknown soil properties which are needed to make the crop grow properly. We have been making farm tools for 75 years and think we have as good a line of Riding Cultivators as you need to choose from.

IRON AGE RIDING CULTIVATORS

are long-lived machines—adjustable for rows 28 to 50 inches, while in motion—teeth adjustable for depth and angle—pivot or fixed wheel, one row or two—high or low wheels—work well on hillsides—farm close and true. A complete line. Our Anniversary Catalog will show you—also, potato machinery, garden wheel hoes and drills, etc. Address

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Stock Guaranteed No. 1

Roses two year, strong, H. P. Moss and Climbing, 12c; Flowering Shrubs, large assortment, 5c, 10c and 15c; Dutch Pipe and large flowering Clematis, all colors, at 30c; Perfection Currant, strong, two years, $10; other currants, $6 per 100; Cherry, Pear, Plum and Spy Apples, 30c; other apples 25c; Cuthbert Raspberries $7 per thousand: Peach trees at 20c; Honeysuckles, 15c; Boston Ivy, 15c; Wistaria 20c; German Iris 10c; Paeonies, all colors, 15c; Lilies, 10c; Tree Roses, Hardy Rhododendrons and Azaleas, Blue Spruce. Write your wants. All must go.

A. W. GRAHAM
ST. THOMAS - - ONT.

PROVINCIAL NOTES

Eastern Annapolis Valley

E. W. Buchanan

The weather in Nova Scotia during the past winter has been the most severe ever remembered, but so far March has been fine and frosty with brilliant sun. The apple orchards look promising; the wood ripened well last season and now there are to be seen a fine lot of fruit buds.

When we left Scotland in February, the trees there were exceptionally advanced, the white buds on the pears were almost ready to burst into blossom, while rhododendrons, primroses, crocus and snow drops were in full bloom. Vegetation was just as forward in England where the winter has been unusually mild, however, if a spring frost occurs it will do a lot of damage in the Old Country which may indirectly affect Canadian fruit returns next fall.

Nursery stock, home grown and imported, is now being root grafted. While in France we walked over several of the famous Orleans nurseries (there are two hundred of them which supply the world with root stocks of various kinds). Owing to the rains and floods, the quantity and in some instances the quality of these stocks is not so great or so good as other years and it is hard to supply the demand, owing to this scarcity; this too will probably affect the Canadian orchardist.

Money in Apples in P. E. I.

I know a man who stated in public last December that he had harvested a barrel a tree from Wealthys seven years planted and it is not impossible for others to do likewise. These trees can be set out 16 by 20 feet or closer, making 162 trees to the acre. At a barrel a tree and $3.00 per barrel this would give $456.00 per acre. Of course this is an exceptional case but just cut it in two and for your five acre orchard you have a revenue of $1140.00 in seven year's time.

Is this not worth trying for? Cultivation, fertilization and thinning the fruit will do it. Then the work is very light compared with other farm work.

NO LIMIT TO THE MARKET

Some one may say that if every one started this work the market would be glutted. The same was said when we started the cheese industry. Why we have not half enough apples on Prince Edward Island to attract a buyer to come here. The City of Glasgow, Scotland, consumed last year more apples than we will produce for export in the next five years. And just think of the markets opening up in Western Canada. No, no, the market will not be glutted. I hope I have been able to present some points in fruit growing that will lead you to give this phase of agriculture more attention.

I do not say that we are getting all out of our orchard that we could have got with better care. I am forced to admit that I have not at all times practised what I preach, but I am fully persuaded that the orchard will give more returns for the time and money expended than any department of farming unless it is strawberries and these could be grown between the trees.

But growing good fruit is only one part of the business, we must have a market for the fruit. The old way of knocking the

SWIFTS' ARSENATE of LEAD

The acknowledged standard in Canada and United States.
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More **SWIFT'S ARSENATE OF LEAD** is made and sold than that of all other manufacturers combined.

THERE IS A REASON. SWIFT'S ARSENATE OF LEAD carries the highest analysis of Arsenic oxide. It is free from impurities. It mixes readily with water. It sticks and lasts. It positively will not burn foliage.

SWIFT'S ARSENATE OF LEAD is used by nearly every Fruit Growers Association in Ontario, and by the Department of Agriculture.

SWIFT'S ARSENATE OF LEAD combined with **NIAGARA LIME-SULPHUR** is the spray that gave such wonderful results in this province last year.

All sized packages. Reasonable prices. We can make immediate shipments. ORDER NOW.

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3 FEEDS FOR ONE CENT

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BEAUTIFUL SIX COLOR PICTURE OF
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(SIZE 22x28 INCHES)
AS LIFELIKE AS IF YOU SAW THEM ON THE TRACK HITCHED TO SULKIES GOING A FAST MILE

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M. W. Savage, sole owner of "International Stock Food," and also of "International Stock Food Farm," positively Guarantees that His World Famous Champion Stallions, Dan Patch 1:55, Minor Heir 1:58, Hedgewood Boy 2:01, Geo. Gano 2:02¼, and his brood mares and colts eat it every day. You are specially invited to visit this Great Harness Horse Breeding Farm ten miles from Minneapolis, and see the practical results of the every day use of the greatest purely vegetable animal tonic ever used on a farm. It is constantly used and strongly endorsed by over Two Millions of the most up-to-date Stockmen and Horse Breeders of the world.

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Is sold by over 100,000 dealers on a spot cash guarantee that its use will cost you nothing unless you get paying results. If it ever fails your money will be promptly refunded. International Stock Food is a strongly concentrated medicinal preparation composed of roots, herbs, seeds, barks, etc., and is equally good for horses, colts, cows, calves, hogs, pigs, sheep, goats, etc. It is fed in small amounts mixed with grain and purifies the blood, tones up and strengthens the system and greatly aids digestion and assimilation, so that each animal obtains more nutrition from all food taken. **It is not amount of grain fed but the amount assimilated or taken into the system that fattens** or keeps your stock in good condition, and as International Stock Food increases assimilation it will save you money. It will make you more money than you can possibly make without its use. I also cures and prevents many forms of disease, and is absolutely harmless, even if taken into the human system. International Stock Food is endorsed by over two million farmers who have used it for years. The editor of your farm paper will tell you we do exactly as we agree, and as reference we give you the Traders Bank of Canada.

PROVED ITS INVALUABLE WORTH. KEHO, ALTA, 10-10-10

The International Stock Food Co., Toronto, Ont.—Gentlemen: I feel in honor bound to offer you my testimonial in favor of your Stock Food. I have used it faithfully this summer and proved its invaluable worth. It made my pigs grow, the results were simply marvelous. I would not be without it for anything. My horses got a very nasty distemper cough in the spring, but the food cleaned it completely out of their system and they went through the Spring work fine and came out of it rolling fat. Please duplicate my last order. Mrs. Coe requests me to tell you that your Poultry Food is excellent, that feeding your Poultry Food doubles the quantity of eggs, in fact, it could not be better for egg production and keeping the fowl healthy.—Yours sincerely (sgd.) ALF. R. COE.

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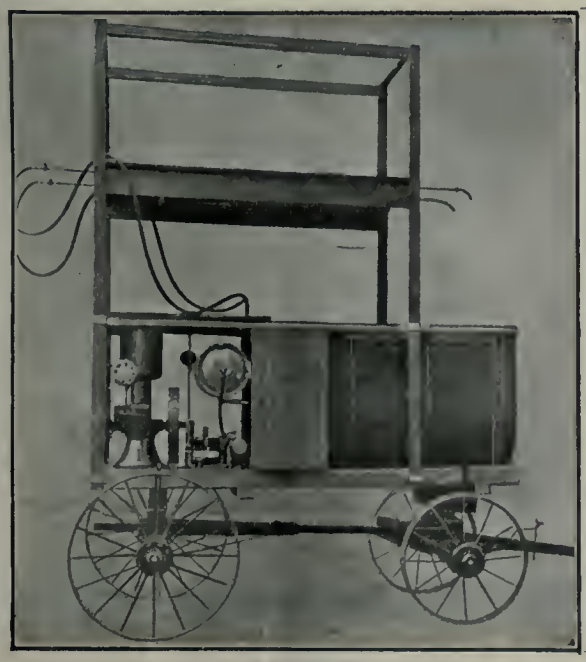

This Model C. Spramotor was awarded four Gold Medals, two at National Horticultural Congress, one at Dominion Exhibition, St. John, and one at Provincial Exhibition, Halifax, N.S., 1909-1910. "There are reasons."

Mr. J. C. Harris, of Ingersoll, who is using 4 Power Spramotors for eight years, writes about the latest Model C.

"I have used your Model C. Spramotor, 1910 Gasoline Power Sprayer almost every hour of fine weather during the past four weeks, with the exception of four days.

"We have had no break-downs, practically no delays. It works perfectly, and so far has given the very best satisfaction in use in every way. It is all you claim it to be."

We have been manufacturing Spramotors for 15 years for spraying purposes only. "That is the reason." Particulars free.

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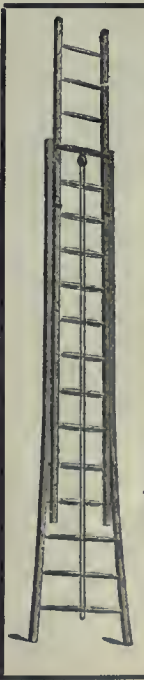

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It is
LIGHT, STRONG
EASILY OPERATED AND DURABLE

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Makers of Ladders for every conceivable purpose

Spray and Make Your Crop a Success

You can practically determine in advance the amount of perfect fruit or vegetables if you spray regularly with

ELECTRO Arsenate of Lead

(in Powdered Form)

Its (guaranteed) 32½-33% arsenic oxide — twice the strength of other brands—kills all leaf-eating insects at once, but the newest foliage will not be harmed because Electro contains less than ½ of 1% water-soluble arsenic. Electro is the only successful **dry** arsenate of lead because it is the only one in amorphous (non-crystalline) form. Mixes instantly with water and remains long in suspension; or can be used as a dust. Rains cannot wash it off.

Tests by Conn. and N. J. Agri. Exper. Stations prove its value—send for these.

Write, too, for our folders on Electro Arsenate of Lead and on Lime-Sulphur Solution—of greatest interest and value to all orchardists and truck growers.

If your dealer cannot supply, write us for prices, proofs and name of nearest distributor.

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A fence of this kind only 16 to 23c. per running foot. Shipped in rolls. Anyone can put it on the posts without special tools. We were the originators of this fence. Have sold hundreds of miles for enclosing parks, lawns, gardens, cemeteries, churches, station grounds, etc., etc. Supplied in any lengths desired, and painted either white or green. Also, Farm Fences and Gates, Netting, Baskets, Mats, Fence Tools, etc., etc. Ask for our 1911 catalog, the most complete fence catalog ever published.

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WHY ARE YOU IMPORTING PHOSPHATE AND AMMONIA WHICH IS A BY-PRODUCT OFF YOUR FARMS OF WHICH YOU ARE EXPORTING MANY THOUSAND TONS ANNUALLY, BONES AND WHICH CONTAIN LARGE QUANTITIES OF PHOSPHORIC ACID AND AMMONIA.

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PURE BONE MEAL IS THE CHEAPEST

FERTILIZER.

THIS PLANT FOOD IS ALL FROM OUR CANADIAN SOILS AND SHOULD ALL GO BACK.

SEND FOR PRICES, ETC.

THE W. A. FREEMAN CO. LIMITED
HAMILTON, CANADA.

FIRE, LIGHTNING, RUST AND STORM PROOF

SIMCOE, ONT., April 9th, 1908
"We have handled your 'Eastlake' Shingles for nearly a quarter of a century. They have been on the Court House, Free Library, and other public buildings of this town for 18 years. We have used very large quantities during the past 25 years, and they have always given first-class satisfaction, and have never required any repairs."
(Signed) MADDEN BROS.
Tinsmiths and Hardware Merchants.

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Limited, Manufacturers
TORONTO & WINNIPEG

2459

Agents wanted in Some Localities

apples off the trees, putting them in bags and peddling them about town won't do. I will show you a more excellent way. Hand-pick the fruit before it is too ripe, have it neatly packed in boxes or barrels—I prefer the boxes—and ship it to the best market. Boxes cost about twelve cents each, barrels almost forty cents and three boxes will bring more money than one barrel.

Lots of people would buy a box of apples, who would hardly think of buying a barrel at a time. I believe, too, that it would pay to wrap—in paper specially made for the purpose—our fancy apples. That is medium sized red apples, such as Famouse, Wealthy or McIntosh Red, and of the early apples the Crimson Beauty.—J. A. Moore, P.E.I.

Cranberries in Nova Scotia

A. Kelsall, Wilmott, N. S.

Probably one of the most interesting features of the Short Course in agriculture at the Nova Scotia Agricultural College was Mr. Bishop's lecture dealing with cranberry culture. Any bog or meadow land can be made to grow cranberries, the one and only essential point being that it must be free from standing water for at least one foot below the surface. The sod or turf should be removed. This is usually done by hand, at a cost of from fifty to one hundred dollars per acre. Sand should then be hauled on to the land and spread over it to a depth of four or five inches. The fine red sand so common in Nova Scotia is not recommended as it is impregnated with iron, and greatly favors the growth of fire moss. A rather coarse and gravelly sand is found to be best, the common white sand being excellent. The plants are set in rows about eighteen inches apart and pressed in with a dibber, generally about the last of May or the first of June.

Barn manure is of no use in cranberry culture, but on very poor soil an application of six hundred pounds of a potato fertilizer to the acre is often beneficial. The bog must be weeded by hand, a rather laborious, and sometimes an expensive, preceeding. The vines commence to bear the third year from planting, but it is not until the fifth year that they are in a prime bearing condition.

At intervals of a few years the bog must be resanded to a depth of about one inch in order to keep down the fire moss.

INJURIOUS INSECTS

There are three insects which are injurious to the cranberry—the fire worm, the span moth, and the berry worm—all of which can be kept under control by means of arsenical sprays. About fifty barrels per acre is an average crop, and from five to seven dollars per barrel is an average price. The principal market at present is Montreal. Shipments have been made to England and elsewhere with success. There is a continual demand for cranberries, and the market is practically unlimited. Cranberries are stored in boxes holding about a bushel, in a dark, well ventilated place, which need not be as cool as that desired for apples. The yearly expenditure on an acre of bog is, according to Mr. Bishop, about as follows:

Weeding	$10 00
Sanding	15 00
Picking, marketing, and extras	35 00
Total	$60 00

It will be readily seen that if the berries fetch $250, cranberry culture is, as Mr. Bishop considers it, an extremely profitable occupation.

Gulf Islands B. C.

W. J. Hamilton, South Salt Spring, B. C.

There are two horticultural lines which should prove great money makers in our district of British Columbia. (Gulf Islands). The first is the growing of hardy bulbs.

For purely ornamental, not commercial purposes, I have round my house at least 50,000 bulbs of common hardy varieties, such as snowdrop, scilla, chionondoxa, crocus, hyacinth, daffodil and narcissus, tulip, gladiolus, etc., whilst anemone, iris, lilies of sorts, lily of the valley and other quasi-bulbous plants grow like weeds. All these multiply most freely with little care, large numbers growing through the grass where they look their best. We have much light well drained sandy loam, and I believe that anyone who gave to this line the care and attention it requires could make this business most remunerative.

The other line, which as the profits in it are long delayed, might well be combined with bulb culture is the growing of holly berries for the Christmas market. Buyers from the American side come to Victoria every year and clean up what holly they can get, paying high and yearly increasing prices for it. It is true it takes many years for holly to bear profitably, but might not shelter belts of it be planted round the bulb fields to protect the bulbs from the sea breezes? The holly trees would thus serve a useful purpose whilst they were growing to a bearing age.

Montreal

E. H. Wartman, Dominion Fruit Inspector

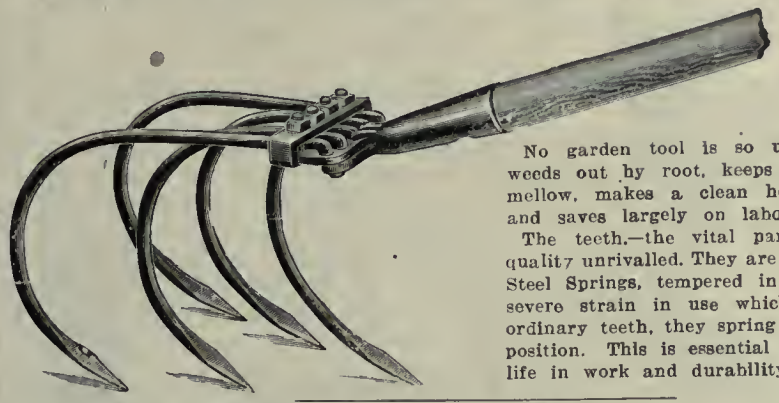
During my inspection season in Ontario from December 5th to March 18th, principally in county of Northumberland, although the quantity of apples stored was small compared with other years, yet shippers packed slowly, lengthening out season. Good, well packed apples brought long prices all through the season. One thing that was quite evident in most of the packing houses visited were that apples of the most inferior quality were stored. Even quite a percentage of windfalls were put in storage, and these conditions, of course, made a large per centage in shrinkage.

It appears to me that in March, when temperatures in cellars cannot be controlled and apples rotting fast, the air is thoroughly polluted in the barrels to the detriment of all, and when repacked at a temperature of 40 degrees F. we could not look for good results for future keeping. Choice apples of winter varieties packed in October and November and kept at a temperature of 31 to 33 degrees F. will not require repacking in February and March, but in some cases may require a cushion pad to replace natural shrinkage. In my experience I have found only one per cent. of apples handled as above rotten in April.

Prices of apples being very high, the orange and banana trade is booming. Think of $1.25 being asked me for a 11 quart basket of poor Spy apples, or over $12 per barrel. In 1886 I bought far better Spy apples for 50c. per barrel by taking a two hundred and fifty barrel lot 1's and 2's. It seems to be a very poor year for our most coveted apple, the Spy. The Stark seemed to be generally good when the Spy failed.

The Ben Davis apple seems to be a favorite, even to the reptile kingdom. A good sized specimen of this variety was given to me, which a garter snake of about fifteen inches in length had hollowed out and curled inside the cavity and died there. The snake had been in some way headed up in a barrel in the orchard and after

THE "BUCO" CULTIVATOR

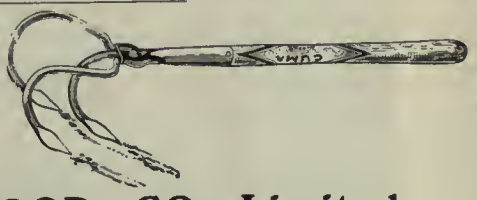


Handle 4½ Feet long

No garden tool is so useful. Cleans weeds out by root, keeps soil fine and mellow, makes a clean healthy garden and saves largely on labor.

The teeth.—the vital parts,—are of a quality unrivalled. They are all high grade Steel Springs, tempered in oil. After a severe strain in use which would ruin ordinary teeth, they spring right back to position. This is essential to get proper life in work and durability.

The 'CUMA' CULTIVATOR



Length over all 18 inches.

Similar in quality to the "Buco" The greatest little Tool in the world for flower beds and fine work. Sold by Hardware and Seed Trade. If your dealers cannot supply you, write us direct

BAILEY-UNDERWOOD CO., Limited

NEW GLASGOW, N.S.

Defy lightning as well as storms

You can defy lightning, so far as it affects your buildings, when you roof with Preston Shingles. For with them you get a GUARANTEE against harm to any building they cover from the thunderbolt. And they protect you against all kinds of weather as well.

YET these better-galvanized (therefore longer-lived) metal shingles cost you not a cent more per hundred square feet than you must pay for the ordinary kind. And even that ordinary kind is worth far more than wood shingles—or slate—or the (so-called) patent roofings.

PRESTON SAFE-LOCK SHINGLES

You should be well-advised about roofings

Allow us to send you a book that tells the mere truth about every sort of roofing material there is. It is free. You would gladly pay for it if you know what it would save you—in money, bother and time. But it's yours for the asking.

Please ask for that book. Do it now. It tells, among other things, why the all-square lock means bigger roof value. Write and

Ask Questions!

C. Dolph
Manager

Metal Shingle and Siding Co., Limited

Olive St. Factory, Preston, Ont., and Montreal.

29

five weeks had elapsed was turned out on a table for repacking. The part of the apple surrounding the hole of the snake apple was in sound condition and bright in color. The snake had partaken of the only food available, which was not healthful to one of his kind.

I hope fruit exporters do not think it a profitable thing to ship No. 3 apples to England. Let them average up returns for the past ten years and then ask themselves the question, How much more would I have received for my No. 1's and No. 2's if I had shipped no No. 3's?

Will See Ontario First

To the Editor, THE CANADIAN HORTICULTURIST,—I hope you will allow me to express to you personally my opinion on your leading article in the January issue under the heading, "Insult to Injury." During the last eight years I have very closely followed the development of Canadian fruit growing. I have read the literature issued by the different Provincial governments nearly every year. I have also watched the display of Canadian fruit at the offices of the Canadian Pacific Railway, the Canadian Emigration offices, the Ontario Government office and the Grand Trunk Railway. I think Ontario is just as well up-to-date as British Columbia as regards the advertisement and display of fruit.

The only reason why so many English settlers go directly to British Columbia is in my opinion the climate. For the Englishman seems to be afraid of the snow and cold weather as you have it in Ontario, while in British Columbia he happens to find a climate more like the South of England has.

Further, the Province of British Columbia has many Land Companies offering land in small lots of five and ten acres, while Ontario has none as far as I know. So the average Englishman thinks there is a certain difficulty of acquiring land in Ontario. Then some of the literature on fruit growing in British Clumbia says that there are no insects and pests, which are usually met in older districts as Ontario and the United States. I have lately received a lot of information on fruit growing in Nova Scotia, Ontario and British Columbia and I must admit, that I would prefer British Columbia to any other part of Canada.

I am not quite sure whether I shall come out this spring or next year, but I shall certainly not pass Ontario without having a good look in. My intention is to work one year in Ontario before going to British Columbia. I have just received pamphlets from a land company in which a fruit farmer writes that he was engaged in fruit growing in Ontario nearly all his life but for the last seven years he has been in Kootenay and says that one acre of bearing fruit trees in Kootenay is worth ten acres in Ontario.

Statements like the above are certainly no advertisement for Ontario and if the average Englishman reads such testimonials he does not care to inquire any further about Ontario.—Martin Winkler, subscriber to THE CANADIAN HORTICULTURIST, London, England.

Co-Operation In The Niagara District

Mr. F. G. Pattison, of Winona, is greatly interested in the development of the fruit industry and very favorable to fruit inspection. He says that the townships of Saltfield and Grimsby are the best inspected in the province. This is due to the fact that the growers uphold the council in this work as they realze that it is their only salvation from the little peach and yellows as well as scale. The inspectors for these townships are the best paid of any in the province. There are three for each township while other townships have only one or in many cases none. He thinks that it is a weakness to have them appointed by the Council and that they should be provincial appointments. Mr. Pattison is enthusiastically in favor of the adoption of a system of co-operative selling for the entire Niagara District. He says that the large dealers who were formerly against this method are beginning to realize that it is the only way in which they can keep a uniform price, a steady market and prevent gluts. A combination of 25 men would do it. He does not expect a general combination of the Cooperative Association and large dealers as yet. But some style of a Board composed of one man from each concern to meet weekly to set prices to keep outside dealers from coming, in shipping out inferior goods, then cutting prices and thus demoralizing the trade. They could thus keep up quality of fruit, prevent the shipping of green grapes and plan a better distribution, so that gluts would not occur in one market while another would have no fruit. As evidence of the middleman's profit he cited a case that while attending a fruit meeting in Toronto he placed some grapes in a fruit stand at thirty-five cents per basket when the same grapes could be bought in Grimsby for twelve and a half cents to fourteen cents and two cents would pay the freight. In this case the grower received very little more than thirty per cent. of the consumer's dollar.

Oyster Shell Bark Louse

Lime sulphur has not been as successful in the subjection of the oyster shell bark louse as the advocates of its use had desired. From experiments conducted at the Experimental Farm, Ottawa, Prof. Macoun would advise the addition of twenty pounds of lime to the barrel of lime sulphur as mixed ready for application. He reports that the use of this mixture has been very successful in controlling the oyster shell bark louse during the past season. The caustic nature of the lime dissolves the glutinous matter of the scale and allows the lime sulphur to work under the scale and kill the insect.

Enforce the Fruit Marks Act

The only remedy that I can see for the betterment of this industry is the strict enforcement of the Fruit Marks Act, and this can only be done right at the point of shipment and by educating our fruit packers what apples are to be packed. By the enforcement of this Act at the point of shipment the buyer will soon find it not policy to buy unsprayed orchards. As long as the grower can sell his apples at ordinary prices without spraying it is certain that he will not take much care of his orchard. The summary in a few words is the enforcement of the "Fruit Marks Act" at the point of shipment by competent inspectors, who can also act as instructors. —Jas. E. Johnson, Simcoe.

Fresh peaches are to be exported from the Delaware and Georgia orchards to England as the result of the successful experiments made from the Niagara district.

BRUCE'S FLOWERING BULBS

GLADIOLUS

CHOICE MIXED, 10 for 25c; 25 for 60c; $2.00 per 100, post paid.

GROFF'S HYBRID SEEDLINGS, MIXED, 10 for 30c; 25 for 60c; $2.00 per 100, post paid.

BRUCE'S WHITE AND LIGHT SHADES, 10 for 40c; 25 for 90c; $3.50 per 100, post paid.

CHILDSI, MIXED, 10 for 50c; 25 for $1.00; $3.75 per 100, post paid.

BRUCE'S SUPERB MIXED, made up by ourselves from all varieties the best, 10 for 60c; 25 for $1.25; $4.50 per 100, post paid.

GROFF'S WORLD'S FAIR COLLECTION, Novelties in all colors, grand, 12c each, 10 for $1.00; 25 for $2.25, post paid.

NEW GRAND NAMED VARIETIES, almost any color, 18 sorts, 20c each; 18 for $2.75, post paid

DAHLIAS

Splendid Named Sorts, all colors, Show, Cactus, and Pompon Varieties, 22c each; $2.20 per doz., post paid. Ordinary varieties, mixed, 12c each; $1.20 per doz., post paid.

TUBEROSE

The Pearl, double white flowers, each 5c; per doz. 40c; per 100 $2.50, post paid.

Single Orange Scented, beautiful orange-like blossoms each 5c; doz. 50c; 100 $3.50, post paid.

LILIES

Auratum, Lancif, Album and Rubrum, Elegans, Pardalinum, Tigrinum, Umbellatum, Tenuifolium and Wallacei, each 20c; per doz., $1.80, post paid.

Write for our handsomely illustrated 104 page Catalogue of Vegetable, Farm and Flower Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc. FREE.

JOHN A. BRUCE & CO., LIMITED SEED MERCHANTS ESTABLISHED 1850 HAMILTON, ONT.

POULTRY

Growthy Chicks at a Minimum Cost

J. W. Clark, Brant Co., Ont.

Good growthy chickens ready for the market in late summer or early fall can be raised at a minimum cost when fed from hoppers and allowed to range in the orchard. My chickens have the run of my orchard, which is kept well cultivated so that there is lots of green food provided such as a chicken can eat. I sow a little clover for them. Since the orchard is cultivated, say once a week, the soil is in splendid shape for the chickens to dig and scratch and thus secure much animal food. The different young weeds and clover that keep popping up makes the ideal green food for them.

The chickens also do a world of good in the orchard. It is most interesting to watch them in the early morning out under the trees. Codling worms, canker worms, and so forth, which let themselves down to the ground by means of their silken ropes, are quickly snatched up and converted into chicken. The shade which the trees provide is a necessity of chick life in hot weather; hence it is an all round benefit to have them in the orchard.

My chicks are fed wheat screenings and cracked corn, all they want, as they take it from the hoppers. They are watered from a barrel, the water from which drops slowly into a drinking pan beneath. A mash feed of ground oats and corn mixed with sour skim-milk, is fed once a day. Sweet milk should never be given, as it propagates disease so readily. Buttermilk is even better than sour milk, and may be fed liberally to great advantage.

If fruit growers generally will feed their chicks in this way, they will raise the best chickens they ever did. Their chickens will be much better than they have been, and they will have such chickens as they will get off to market early—chickens that will not need crate fattening, and there will be but little labor in raising them.

Grit is Essential for Poultry

E. F. Eaton, Colchester Co., N.S.

The grit in the food of the hen performs the same function in preparing the food for the assimilation as do teeth in the case of other farm animals. In the gizzard of the fowl, the strong muscles in the walls keep the food and the grit grinding continually against each other, and in this way coarse food is rendered fine and put in the proper condition for assimilation. Without grit, bowel trouble is sure to result in fowl as the food will not be digested.

Very fine grit should form the first food of the young chicken. As soon as the chicken is taken from the incubator, it should be given a chance to pick at grit so that it will have the means whereby it can make use of its food. Failure to observe this rule is a most frequent cause of loss in the brooding of young chicks.

Fine sand, oyster shells, broken crockery, and mortar from old walls are all desirable forms of grit. Old mortar serves a double purpose of supplying grit, and the lime to make the shell of the egg. If lime in some form is not fed, soft-shelled eggs result. Where hens have free range in the

Peerless Fences cost the least per year of service

THE longer a fence lasts the less it costs you. That is why Peerless Fence is the cheapest you can buy. It is made right in the first place. Heavy steel wire, well galvanized so that it cannot rust. Each intersection is held firmly together by the Peerless lock. Peerless Poultry Fencing is made to give long and satisfactory service. It is strong enough to keep the cattle out and close enough to keep the chickens in. It requires few posts, because it stands stiff and taut. Peerless Lawn Fence will add to the appearance of any property. It is attractive and strong—will last for years.

I have compared some of your Peerless Fencing that I put up the first year with other fences put up the same year and I find that Peerless Fencing shows no sign of rust and the galvanizing looks as good as when erected, and I think you have been successful in turning out a good fence. —Mack Lillis, Glenburnie.

Comparing your fence with other makes it is not hard to tell which is the best. There is no sign of rust on the first Peerless Fencing I put up here, and there are some other makes that were put up about the same time that are rusted in spots now. Where I have sold fencing once I can go back and sell to them again. —G. A. Petapiece, Oxford Mills.

We manufacture a full line of farm and ornamental fencing and gates.

THE BANWELL HOXIE WIRE FENCE CO., Ltd.

Dept O, Winnipeg, Manitoba Hamilton, Ontario

57 BUSHELS MORE POTATOES PER ACRE WHERE PLANTED WITH IRON AGE (Improved Robbins) Potato Planter

Average results obtained in a careful, thorough test against a "picker" planter by Maine State Experimental Station, in 1910. Ask us quick for the proof—we will send you now bona fide copy of their report in Bulletin No. 188, which will be ready about March 15th. Shows exact results. Also, comparison of level culture, high and moderate ridging. 100 per cent. perfect planting is what you want—no doubles, no misses, no injury to seed. Address

BATEMAN M'F'G CO. Box 516-P GRENLOCH, N. J.

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40 leading varieties sold at prices you can afford to pay. Catalogue free. It will pay you to secure it before you order your plants. 100 plants sent post paid to any address in Canada for $1.00

JOHN DOWNHAM STRATHROY, - - ONTARIO.

STRAWBERRY PLANTS

Reliable and tested varieties, strong and well rooted plants, carefully packed. True to label. Including Williams, Senator Dunlap, Glen Mary, Sample, New York, Clyde, Cobalt.

WRITE FOR CIRCULAR AND PRICES

J. E. McCOMBS Pelham Corners - Ontario

summer no provision need be made for supplying grit, but it should be constantly in front of them when housed for winter. I have found that the most convenient way to feed them is by means of a small feeding hopper, divided into two compartments. In one keep oyster shells, and in the other old mortar pounded fine.

Variety Strain in Cabbages

From bulletin No. 96 of the Agricultural Experiment Station, State College, Pa., the following extracts are taken:

"Faithfulness to name and type, is perhaps of greater importance than any other phase of the seed question. At the same time it is a factor about which there is probably the least known. Unless seed, purchased for a certain variety, produces plants reasonably true to the general conception of that variety, even though all cultural conditions be perfect, a satisfactory crop will be very uncertain.

"The fact that varieties of plants vary in character to a greater or less degree has long been known, but comparatively little experimental work has been done to determine the extent of these varieties or to show their importance in the production of profitable crops.

"In order that some definite information may be secured on this question, a number of experiments were instituted by the Department of Horticulture to determine the influence of varietal variations as related to the production of cabbage and other vegetables.

"The experiments with cabbage include strain tests of four varieties, viz.: Jersey Wakefield, Charleston Wakefield, Early Spring and Early Summer. In the present bulletin we shall consider only the results of strain tests of the variety Jersey Wakefield. The work has been in progress two years, and the present report is submitted as a bulletin of progress rather than a report of completed experiments, and while the figures given should not be considered as conclusive, yet they may be regarded as a fair criterion of the variations as they are found to exist within this variety and of the relative importance which they bear to profitable crop production."

The results of the experiments are summarized as follows:

"1. The experiments with twenty-five strains of Jersey Wakefield cabbage, covering a period of two years, indicate that marked variations occur within the variety.

"2. These variations have a direct bearing upon profitable crop production. There are great differences in earliness, yields, form and solidity of heads, and each of these factors is important in determining profits for the season.

"3. The degree of vigor of the young plants in the seed bed is of no value in indicating the size or character of the resultant crop.

"4. The percentage of germination of some strains was much too low, and it is important for seedsmen to give this matter closer attention.

"5. The wide variations and lack of uniformity in this variety show the importance of exercising the utmost care and skill in producing and selecting cabbage seed.

"6. While the results of the two years' tests show wide variations in strains of Jersey Wakefield cabbage, the investigations will be continued several years to determine more definitely the full importance and significance of such differences."

Fertilizers for Asparagus

The Maryland Experiment Station, conducted experiments with fertilizers on asparagus in order to test the following fertilizers applied in different quantities and times of application.

1. Commercial fertilizer versus barnyard manure.
2. Different sources of potash.
3. Light and heavy applications of kainit.
4. Heavy applications of nitrate of soda in spring.
5. Heavy applications of salt.
6. Manure in different amounts with and without commercial fertilizer.
7. Different times of applying manures and fertilizers.

During the six seasons of this experiment, from 1905 to 1910 inclusive, the manure and fertilizer were applied broadcast according to the outline above. As soon as the spring applications were made, two furrows were plowed from each side over the rows and a harrow was run crosswise and then lengthwise of the rows to level the ground so as to produce green shoots instead of white ones. Once during the cutting season this same treatment was given, and then again when the fertilizer and manure were applied after the cutting season. In 1909 and 1910 a double disc cultivator was used instead of the plow and only one harrowing was necessary to level the ground.

SUMMARY OF EXPERIMENT

Kainit at the rate of 2,000 pounds per acre applied in mid-summer gave the highest net gain per acre of any of the plots.

Dissolved rock 400 pounds, kainit 400 pounds and nitrate of soda 200 pounds per

Galvanized steel U-Bar. Every two feet it is screwed to core.

Cypress core which is chemically treated against decay.

The U-Bar complete. This is half-size.

PERHAPS EVEN YET

You haven't an absolutely clear idea of just how the U-Bar is made—what it actually consists of—so we have taken it apart, showing the steel U-Bar shell; and right beside it is the cypress sash bar core.

The shell after drilling, cutting and bending for curve at the eave, is galvanized with our special hot process. The core is chemically treated with an absolute preservative, then it is pressed tightly into the steel core and held securely at alternative points on opposite sides by strong countersunk screws. This gives a combination of sash bar and rafter in one, having wonderful strength, while still being so small as to cast the least possible shade. For durability it makes a greenhouse that you can plainly see is bound to have an extra long life because of the careful protection of all vital parts. It's not only the best growing house but it's the most attractive. If you would know more, send for our new catalog.

U-BAR GREENHOUSES

PIERSON U-BAR CO.

DESIGNERS AND BUILDERS 1 MADISON AVE. NEW YORK

Canadian Office, 10 Phillips Place, Montreal

acre applied in early spring gave the next best net returns.

Kainit at the rate of 500 pounds per acre in mid-summer gave the third best returns.

Muriate of potash gave better results than sulphate of potash..

Nitrate of soda alone in early spring reduced the yield.

Dissolved rock alone in mid-summer was not beneficial.

Salt seemed to increase the yield slightly but had no effect in keeping down the weeds.

Manure is too expensive to apply year after year. In seven manure plots only two produced any profit.

Dissolved rock 400 pounds, kainit 400 pounds, and nitrate of soda 200 pounds per acre used in early spring gave a profit of $352.76, while the same fertilizer plus 10 tons of fresh manure in early spring yielded more asparagus but the profit was only $68.36, the high cost of manure making the difference in profit.

Manure and fertilizer combinations are desirable in moderate amounts, but are too expensive in the heavy applications made in this experiment.

The best time to apply manure or fertilizer is not settled by these tests, but leaving out the two kainit plots the early spring applications were followed by the heaviest yields.

In arriving at these figures fresh manure was valued at $2.00 per ton, rotted manure at $3.00 per ton, kainit at $10.00, sulphate of potash at $45.00, muriate of potash at $42.00, nitrate of soda at $45.00, dissolved rock at $12.00 and salt at $8.00 per ton. The price of asparagus is averaged at eight cents per pound for the six years.

See our premium offer in this issue.

Niagara Fruit Growers' Association

(Continued from last issue)

Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, described the varieties of strawberries and raspberries that have proven hardy and most productive in various sections. Strawberries should be planted on land that could hold the moisture, but was still loose and rich. He thought that irrigation of strawberries and other small fruits in dry seasons would be adopted in the Niagara District. Barnyard manure well worked in was the best fertilizer. The plants should be covered in winter, marsh grass makes a good cover, while oat straw came next. On the Dominion farm they raked it off, cultivated the ground and replaced the covering. To overcome rust, spray just before blossoming and after the crop was on. It was best to grow varieties that kept up the size to the end of the picking season. He also delivered an address on the best varieties of apples, pears and plums for commercial plantings .

Mr. Elijah Rogers stated that early varieties of peaches in Connecticut ripened at almost the same time as those in the Niagara District. Elberta is their standard yellow peach. There is more money made out of this variety than any other. Late cultivation, however, has a tendency to cause it to drop from the tree. Their best late varieties are Iron Mountain and Foxes Seedling. Late Crawford is a shy bearer with them. They are not as sure of a crop of peaches in Connecticut as the Niagara District, as they can depend on only about two crops out of every five years.

In Connecticut they plant Wagner, Wealthy, McIntosh Red, Gravenstein, Duchess, Williams Red, and Baldwin. The apple trees are grown with the peach trees, one apple tree to three peach trees. He uses Bordeaux for the bitter rot, but has found no remedy for the Baldwin spot. He uses a fertilizer liberally, chiefly potash and phosphoric acid, as he depends on red clover to suply the nitrogen.

SOW COVER CROP EARLY

He plows the orchards early in the spring and sows the clover the latter part of April or first week in May. He sprays every apple tree, young and old, with lime sulphur and the peach trees with the lime sulphur early and with the self-boiled lime sulphur in the summer for peach rot.

The fruit growers in the Niagara Peninsula are preparing to spray to even a greater extent than in previous years. Those who are fortunate enough to have cared for their apple orchards in past years are enthusiastic over the future outlook of the apple industry. In fact, many feel that with proper care apples will pay better than peaches.

A deal has practically been consummated by which Woodstock, Ont., secures a branch of the big pickling firm of Libby, McNeil & Libby, of Chicago. A representative who was in the Woodstock district states that his canvas among the farmers resulted in contracts for about two hundred acres of cucumbers for the proposed factory which it is estimated will employ about seventy-five hands.

I enjoy reading THE CANADIAN HORTICULTURIST exceedingly, having been a constant reader of it for years. It is very helpful to anyone interested in horticultural pursuits. — Mrs. W. D. Swazye, St. Catharines.

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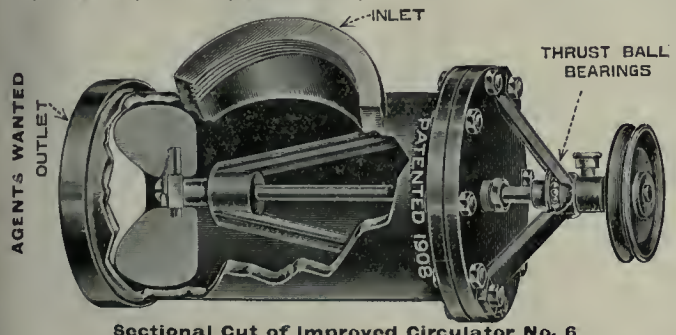

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The Canadian Horticulturist

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IF YOU WOULD LIKE to purchase a site for a home and fruit farm on good, suitable soil situated in the most favorable and dependable climate in Canada, get Louth-Clinton Peach Area free information and ground floor prices for properties in the coming locality for most profitable fruit growing. Don't miss present bargains—forty thousand mansion and farm for only thirty thousand, a fifty acres for ten thousand; others large and small. Enquire about them. State what you want. W. H. Brand, Jordan Station, Ont.

YOU CAN TALK to the members of 10,000 homes for a few cents by placing your advertisement in this column. If you have anything to sell, or want to sell or buy a fruit farm try it. It will pay you.

PREMIUM OFFERS

Show your friends this number. Get them to subscribe, and earn a valuable premium.

Leasing Orchards

Some idea of the extent of the operations of the company that is leasing orchards throughout Ontario and part of Quebec may be gained from the fact that already it has 14,000 trees, representing about 4,500 acres of orchard, under lease. Upwards of 1,000 acres of additional land is being purchased outright. Most of the orchards have been leased for periods of ten years. The majority of them are located in the counties of Prince Edward, Grey and Huron, although operations are being conducted in some eighteen counties all told. Interests have been secured also in two of the largest orchards in the province of Quebec. Mr. I. F. Metcalf, formerly the district representative of the Department of Agriculture at Collingwood, is in charge of the operations. The company has appointed representatives in the different districts. Mr. J. E. Anderson, of Melville, being its representative in the county of Prince Edward. Mr. Anderson has at work under his direction several parties of three or four men, each in charge of a foreman. These parties report, both to Mr. Anderson and to the head office in Toronto. They have charge of the pruning and spraying operations in the orchards as well as of all of the work required to maintain the orchards in a good thrifty condition.

Methods of Packing Compared

White & Co., Commission Merchants, Toronto, Ont.

It is difficult to make a comparison of the methods of packing Canadian and California fruits, as the existing conditions are very different.

Our Canadian fruit is intended mostly for immediate consumption, and the packages used are suitable for the purpose intended, they not being called upon to stand any long distance or delayed shipping.

A great improvement has taken place in the packing of Canadian fruits during the past year or two. Shippers have become aware that the public are willing to pay for a well packed package of fruit, so that aside from the moral aspect of the case, it is financially profitable.

With the California fruit a great deal more trouble has to be taken to ensure uniform and proper packages, and proper loading of cars, as the fruit is shipped from 5,000 to 8,000 miles. Nevertheless it invariably opens up at its destination in perfect condition. The shippers are exactly informed as to the carrying qualities of the different varieties, and they in turn inform the pickers as to the exact stage of ripeness at which the fruit must be taken from the trees. Furthermore, the cars are iced thoroughly in transit and kept in sound condition.

We are not noticing so much waste this season in California fruit as we have in previous years, owing to the fact that the United States Government has established pre-cooling stations at most of the large shipping points, i.e., they have a large refrigerator shed into whch the cars are run after loading, and all the vegetable heat is extracted from the fruit inside each of the cars. The temperature is brought down to about 40 degrees, and the ice bunkers are filled. Cars prepared in this way do not require continual icing in transit. The result of this test is that such stations are being established as fast as the apparatus can be installed in the various sections.

While this system would be of no use to Ontario shippers using Ontario markets, it would be of vast benefit to them in shipping to the northwest or to the far east.

Speak Quick!

Your opportunity to secure one of the splendid premiums offered by The Canadian Horticulturist for the securing of new subscriptions, will soon be past. We can only hold this offer open a few weeks longer, as the planting season will soon be over. See some of your friends to-day. Secure a new subscription to The Canadian Horticulturist at 60 cents, which will entitle you to the choice of the following splendid premiums mailed to your address free of all cost.

One Climbing Rose

(Thousand Beauties).

This is the rose which Mr. W. G. MacKendrick of Toronto, the noted rose grower, places at the head of the list of climbing roses. It blooms profusely from the beginning of June to the last of July. The flowers are borne in clusters of from ten to fifteen blooms each, and show tints of bright rose, carmine, white and yellow, all in the same cluster. It is a strong rapid grower, free from mildew or disease of any kind, and is very hardy.

A number of subscribers who have secured one of these roses state that they are delighted with them. The plants are strong and vigorous, with excepionally fine roots. They would cost much more than the price of a year's subscription to The Canadian Horticulturist were you to buy them. But you can secure one FREE by taking advantage of this offer. Nothing could be more beautiful than a well trained climbing rose. Be sure and get one.

To those who prefer seeds, we offer for each new subscription to The Canadian Horticulturist secured at 60 cts., the following choice collection of 14 packets of

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THE CANADIAN HORTICULTURIST
PETERBORO - ONTARIO

The Canadian Horticulturist

Vol. XXXIV JUNE, 1911 No. 6

The Grape--Its Cultivation and Care

A. Bonar Balfour, Pilrig Fruit Farm, Port Dalhousie, Ont,

UNDOUBTEDLY the best method of pruning the grape in Ontario is the true or four arm Kniffen system, possibly excepting the weaker growing varieties as Delaware and Moyer. The canes for the season's crop should spring from short spurs on the main upright trunk having the connecting base just below the supporting wires. This makes the ideal form of vine. The endeavor to equalize growth on the lower arms by growing these canes as a division of the main trunk, is in my opinion a fallacy. I have not found that it gives any advantage in this way. It is not obligatory to select the new canes for the season's crop from those found nearest to the main trunk, but it is highly desirable to do so, provided they are strong and well ripened. It is also desirable to bring out new canes from the main trunk every three or four years to renew the spur in order to eliminate the sprawly growth and the undesirable long knotty old wood forming these spurs. The upper canes should carry three to four more buds than those on the lower wires, and the total number of buds allowed to remain will depend entirely upon the variety and the strength of growth.

These four pruned canes should be tied securely to the wires before the buds swell in the spring and the best method of procedure is to twist each cane carefully around the wire tying the outer end securely with grape twine, two wrappings and a secure knot. This permits the weight of the entire crop to be carried by the trellis wires and not by the canes themselves or the main trunk. It is seldom necessary to support the main trunk where this method is used, but when found advisable to do so, use a short piece of wire shaped like a U, placing the same around the trunk and giving the ends a half turn around the trellis wire. Never encircle the trunk with twine; if you must use twine thus, tie to the wire, carry around the trunk, and tie to the wire again. This will prevent strangulation.

The shoots from the horizontal canes grow out obliquely, but soon fall and hang down with the weight of the fruit and foliage. Any tendency on their part to cling to the trellising must be checked by tearing off, so that they may hang free. There is no necessity for summer pruning, excepting the removal of sprouts and suckers, and the cutting off of the ends of the bearing wood when this reaches the ground and hinders cultivation.

FERTILIZATION

The fertility of the vineyard is an important consideration. The land must be rich to produce a good quality of grape, though an over-abundance of barnyard manure is not advisable. A moderate allowance, together with such commercial fertilizers as are necessary to supplement those elements most required by the grape is essential, nor must th re be any stint. The practice of manuring only around the base of the main trunk, where the feeding roots are erroneously supposed to be, is bad. The fertilizing material must be spread or scattered broadcast over the whole surface of the ground to produce the best results.

Large crops of the finest quality of fruit may be grown without the use of barnyard manure provided cover crops are grown to maintain the proper mechanical condition of the soil together with the liberal use of commercial fertilizers of such composition as is suited to start and *maintain* growth throughout the season. Nitrogen, in any of its special concentrated forms, is not adapted to the grape and its use especially by those not versed in the matter of these special fertilizers, has a tendency to delay ripening of the fruit and canes, whereas bone and potash salts will hasten the maturing of both in a marked degree—under proper conditions.

Will Recommend it

I congratulate you upon the great improvement I notice in The Canadian Horticulturist, especially along the line of caring for the apple orchard. I will recommend it to every fruit grower.—J. G. Jarvis, Black River Bridge, Ont.

SULPHURING

Few growers in Ontario sulphur, or if they do they do it so imperfectly as to be of little value, and it is a pity that sulphuring is not given the same careful attention as is given the pruning.

Mildew, the oidium of Europe, is responsible for much of the poor fruit which may annually be seen on our markets. This can absolutely be controlled by the proper application of sulphur. It is true that cultural methods help the control to a limited extent, but that alone is not sufficient.

Sulphur to be efficacious must cover the whole vine. Throwing sulphur over the vines or dusting on the same by means of perforated tins or through sacking is improvident of substance and imperfect in application. Sulphur acts by means of the fumes it gives off when the temperature is sufficiently high. These fumes destroy the mycelium and summer spores of the fungus, but in order to obtain this desirable end the sulphur must be in close contact and must therefore cover the vine in its entirety. The nearer a spore or a piece of mycelium is to a particle of sulphur, the more quickly it is killed. Practice has shown that sulphur placed on the ground under the vines is wholly useless, though one might reasonably suppose otherwise, when it is considered that there we find the warmest air.

Several forms of hand sulphur dusters are to be found on the market, though the best I know of is manufactured in France, by M. Vermorel, who has an agency in Montreal. The sulphur from this machine is thrown out with violence by means of a current of air produced by a valve bellows. The result is to cover the whole vine with minute particles. This machine, which is cheap, may also be used to dust air-slaked lime on asparagus or poisons in dust form on such plants as require such application.

The time of day to apply sulphur is of little moment provided the weather is suitable. It is less effective when applied to vines wet with dew as the tendency of the moisture is to gather the sulphur into patches. Nor can sulphuring be done in a high wind, though a light breeze will aid the sulphur to penetrate to all parts of the vine.

The treatment should first be given when the vines begin to open their blossoms—this seems to ensure a thorough fertilization and consequent fine bunches—and again when the fruit is the size of buckshot. Two applications seem to suffice as a rule, though some seasons may be exceptional. I have always found that these two applications are effective and will produce a fine quality grape.

SPRAYING

Unless grapes are sprayed with Bordeaux, one must expect annual losses from the rot, some seasons, and in some varieties, to a serious extent. Spraying with the 4-4-40 formula is effective if the

application is made with care—one application will usually do if the vineyard has been well treated in the past, and this should be made when the grapes are of a fair size. Though some specialists advocate at least three, I have found these additional sprayings unnecessary. Poison may be added, preferably in the form of lead arsenate, and the spray must be applied, not only to both sides of the vines, but also through the interior. Such application can only be given by hand. Driving a power machine between the rows is not good business, though more speedy. Speed, however desirable, is not everything. Thoroughness and care in the work, combined with timeliness, is the essence of success.

It must be borne in mind that some varieties of grapes are more susceptible to disease than others, that the location of some vineyards invite disease to the vines in a greater measure than in other localities. Accordingly the treatment found effective in one vineyard may require modification in another. It therefore devolves upon the vine-dresser to use judgment for his own salvation.

Orchard Observations

J. H. Hare, Representative of the Department of Agriculture, Whitby, Ont.

INTEREST in fruit growing has been greatly aroused in this district bordering Lake Ontario. The practice of scraping and pruning has been much more general than heretofore. While the most of this work has been performed to good advantage, a few comments on improper methods might be of value to the readers of The Canadian Horticulturist. One of the chief mistakes noticed has been the pruning of large trees so as to leave the limbs to some extent bare of branches and fruit spurs, leaving simply a small bunch of branches at the ends of the limbs. In this case what fruit is produced is borne on the ends of the limbs, which renders picking and spraying difficult and expensive, and where high winds occur much of the most valuable fruit is readily blown off. Such trees should be headed back severely, in order to produce new branches or suckers, which may be trained into new bearing wood, and in order to lower the tree so that spraying and picking of the fruit may be done more economically.

In many places fruit growers have a mistaken idea of the purpose of scraping of trees. Their efforts seem to be directed to getting off as many of the scales of the oyster bark louse as possible.

SCRAPING TREES

In waging war against these unnumbered foes the combattant effects many wounds which not only injure the vitality of the tree, but subjects it to the attacks of fungous diseases, chiefly the Black Rot or Canker Trees should only be scraped sufficiently to remove the outside rough bark, which will prevent insects obtaining protection under the bark and allow the various spray mixtures to completely cover all of the trunk and branches, so that no part of their surface will be left open to the attack of disease, and that not a single scale of the bark louse will miss being covered with the application.

During the spring and early summer both young and old orchards should receive thorough cultivation. For the first two or three years in young orchards a single cultivator strip, worked up frequently on each side of the row is sufficient. The width cultivated should of course widen as the branches of the trees extend. It is as a result of this practice, together with more liberal applications of fertilizers that British Columbia and Nova Scotia growers are able to get a much more rapid growth in their young trees.

A further observation is the finding of young trees in uncultivated orchards badly infested with the Buffalo Tree Hopper. In many cases is the injury so serious that the trees have been almost ruined. These insects do little or no harm by direct feeding but utilize the twigs and branches of the young trees as places of deposit for their eggs in such a way as to kill or severely stunt its growth. The work of this pest can be identified by the appearance of small crescent shaped cuts which are made by the female hopper in depositing her eggs.

CULTIVATION THE REMEDY

One of the best methods for its control is the practice of clean cultivation. The insect does not feed upon the leaves of the trees. Its only means of sustenance is the grass and weeds found in and about the orchard. The logical remedy, therefore, is to deprive the insect of its food supply by keeping down weeds and grass in the early part of the season. Where this is done, attacks seldom occur. The cultivating need not be continued so late as to prevent the practice of cover cropping.

In cold climates the cover crop should be sown much earlier than in southern latitudes, so as to ensure the proper ripening of the wood. While it is probable that the latter part of July or the first of August would be early enough for southern Ontario, in northern Ontario and Quebec, the land should be plowed as early as possible in the spring and the cover crop sown at least a month earlier, by the end of May or the middle of June.

I have had excellent results from two sprayings with lime-sulphur, one with the strong solution, when the trees are dormant, the other dilute, when the blossoms have fallen. I obtained ninety per cent. perfect fruit, when other years the apples were largely unmarketable.—L. Wolverton, Grimsby.

An Orchard Meeting in a Nova Scotia Orchard

The system of instruction that is proving so successful in other provinces, that of holding meetings in orchards for the consideration of matters relating to fruit growing and where they can best be illustrated, has been followed with much success in Nova Scotia. The illustration shows those who attended an orchard meeting in the orchard of Mr. Frank Fowler, near Bridgetown, N.S. Mr. Fowler and his children may be seen in the centre. Now that an increased interest in the growing of fruit is manifest throughout Canada, more of these meetings might well be held.

A Successful Vineyard in a North-Eastern Portion of Ontario, where the Seasons are Cold

The vineyard here illustrated is that which belonged for many years to the late Judge Mosgrove, of Bell's Corners, a short distance west of Ottawa and close to Lake Britannia. The late Judge Mosgrove had a great love for his vineyard, and in spite of the handicaps incident to its location, he succeeded in growing successfully many varieties of grapes that were believed to be too tender for that district.

Co-operation in Fruit Marketing in N. S.

S. C. Parker, Berwick, Secretary of the Nova Scotia Fruit Growers' Association

THE export of apples from the Annapolis Valley of Nova Scotia, has grown from 35,000 barrels in 1893-1894 to 750,000 in 1909-10. This is only a beginning of what is to come. Ten years will see this output doubled and twenty years will mean an annual output of from two to three million barrels of apples from this section of country, one hundred miles long and from four to ten miles wide.

Situated as this valley is, its extremity about one hundred miles from Halifax, an ocean port with many steamship lines making it their winter terminus, and with good harbors for small steamers at Kingsport, Annapolis and Port Wade, right in the orchards, a system of shipping has grown up that is unique in the history of apple marketing. In the early years of the industry there were few if any buyers. The district was removed from the great centres of population, and the quantity of apples was so small that outside buyers did not come in to look after them.

London was the principal market and the early growers individually picked, packed and usually consigned their fruit to that market. It was all very easy; a dozen English commission houses had resident agents making their headquarters here for the fruit season. These in turn had local agents at every shipping station, and the farmer handled his crop, be it large or small, in his outhouse or cellar, hauled them in small lots to the shipping station,, where the agent combined them in carload lots and forwarded to the consignee. The consignor heard no more of his goods for about four weeks when he received his account sales with a check for the net proceeds. This was a species of cooperation but the profits were all on one side. The transportation companies took a generous slice. The general agent took all his conscience would allow, and divided the pot among his sub-agents. They in turn provided for their subs.

"The greater fleas had lesser fleas upon their backs to bite 'em;
The lesser fleas had smaller fleas, and so ad infinitum."

Then the consignee charged commission, insurance, brokerage, wharfage, lighterage, cartage, porterage, and half a dozen other 'ages, or sometimes lumped them all in a lot as "our charges." The growers fretted long under this burden, but individually were helpless.

MORE STORAGE NEEDED

Ten years ago the export reached 300,000 barrels, and a new system was inaugurated to meet the increased output. More storage room was needed, and the erection of frost-proof warehouses on the line of railway was begun. These were built in some cases by English commission houses, some by local dealers, and some by the growers combining. Here large quantities of apples were collected, packed and shipped under a more uniform system. This, too, was a species of cooperation, but still did not put the profits in the right place. Once inaugurated, the warehouse system grew with astonishing rapidity. The farmer who a few years before was growing a few score or possibly a few hundred barrels, was now getting a thousand or thousands. He needed more frost proof storage and expert help for packing. In 1910 every station on the Dominion Atlantic Railway between Annapolis and Windsor had from one to six of these buildings, from 75 to 150 feet in length, and with storage capacity of from 5,000 to 15,000 barrels each. To these warehouses the fruit is brought as picked from the trees, and here gangs of skilled packers work by day, and in the rush seasons often by night, turning out carloads of straight lots uniformly and skilfully packed.

Another revolution quite as remarkable, has come in the past decade. Before the warehouse system was established, and farm packing was the rule, individual consigning was also the rule. In 1900 probably 75 per cent. of the output was consigned by the grower in small lots to the commission men. Now the universal tendency is to sell as picked, "tree run," as it is technically called, and in 1909 probably 75 per cent. of the crop was sold

to buyers. Buying apples in the Annapolis Valley, however, is a precarious proposition. The man who can make money buying apples from the Nova Scotia growers must be brighter than they are, and that class of men are scarce. The grower knows too much about the business; he is receiving daily quotations from foreign markets, he knows how to pack and market his own product, for he has been doing this for years, so if he cannot get his price ,he handles his own stuff. Only a few men of the many who have bought apples in the Valley have amassed wealth, more have been financially ruined than those who have got out with a whole skin. Buying apples here is no get-rich-quick game. One Ontario man who entered the field in 1909, is reported to have left $30,000 behind him when he pulled out.

CO-OPERATION OF THE GROWERS

Cooperation has been talked for years, and attempts were made some years ago to organize the whole district on a comprehensive scale. This scheme though good in theory, failed through being too large, and attended with too much initial expense. Three years ago the first successful attempt was made at Berwick. Twelve men organized the Berwick Fruit Company, Limited, incorporating under the Nova Scotia Joint Stock Companies Act. The idea expressed by the organizers was to commence on a small scale, put up a good pack, gain the confidence of the market, sell for cash f.o.b. cars, or if sales were not quick ship on consignment to good houses. The organization was a success from the beginning. The first year this concern handled 7,000 barrels, getting better prices than the average grower and earning enough in commissions, etc., to practically pay working expenses. In 1908 some more good men were taken in and the output was about 15,000 barrels; more members came in, and in 1909, 22,000 barrels passed through the packers hands, netting some $45,000.

The Berwick Fruit Company, in its first year's operations, consigned about one half of its output; a uniform and square deal have gained for their brand a reputation that will sell thousand barrel lots by cable just as readily as by personal interview. Last year the output was practically all sold f.o.b. cars at the warehouse; and cash or draft attached to Bill of Lading are the usual terms.

The company sells over a wide range; three cars of Gravensteins were sold in the Canadian West, going as far as Moose Jaw. Five cars to South Africa buyers at $4.50 per barrel, was a satisfactory deal for both buyer and seller, and a feature of the business is that both these extremes want more of the same stuff. Inspired by the success of the pioneer company, others are being formed. A general cooperation act of the Nova Scotia Legislature makes the process of organization easy and inexpensive. Five cooperative companies operated last year, handling about one-tenth of the crop. This year ten are at work, all owning their own packing houses and controlling probably 25 per cent. of this year's crop.

As a means of getting nearer together a central organization has been formed, composed of representatives of all the tributary companies. This central organization has a board of directors, and general manager, and we look forward to a not distant day, when the central company will sell and buy for all the subsidiary companies. This central company in 1909 chartered three steamers, and shipped 25,000 barrels to London in their own ships, saving fifteen cents per barrel freight to shippers and incidentally making $1500 clear money, which is laid aside for the rainy day which is liable to come some time.

The day of small things in the apple business has passed, and the prospect now is that in a few years cooperative associations will practically control the output of millions of barrels from the famed Annapolis Valley.

Practical Experience in Fruit Growing

Alexander Smith, Enfield, Ont.

I go over my orchards every spring and prune regularly. We then have no large limbs to cut off, as I think a little each year is much better than to miss two or three years and then give a severe pruning.

I have generally had root crops of some kind or beans in the orchard. We would not advise sowing barley or oats in an orchard unless one wished a sickly light colored foliage on their trees.

As we work a large farm we do not need to sow clover to plow under, as we usually have plenty of good farmyard manure. I believe in cultivating an orchard early in the spring to start the trees off quickly, but would plow early in the fall, as late cultivation will start a growth of wood that would be injurious to the trees. Plow or disk the orchard the last thing in the fall, as it will be found a great help in the hurry of spring work and help with the early cultivation of the orchard.

DOUBLE PROFIT FROM BEES

As an apiarist, I find that we obtain double profit from our bees. We produce tons and tons of honey each year. Aside from this, the bees are invaluable to our orchard and alsike clover. They are double croppers. Through their work in pollinizing the blossoms they ensure us a good set of fruit and an abundant crop of alsike seed. All scientists are agreed that bees and insects are much more efficient agents of pollination than the wind; and of the

Gathering the Strawberry Crop on a Farm near Streetsville, Ont.

Notice the building provided to shelter the berries when picked.

Intensive Fruit Cultivation
Pear Orchard of Mr. Jas. E. Johnson, Simcoe, with strawberry plants between the trees

insects, bees are of the greatest importance in this work. Thoroughly fertilized blossoms produce larger and better shaped fruits.

As bees are quite a study in themselves, if the fruit grower does not understand their care, it might be more satisfactory to get some beekeeper to place a few hives in the orchard. Bees will travel two or three miles from the hive in good weather, but their greatest benefit is obtained in wet, cold and cloudy weather, when it is probable that they will not venture far from the hive.

In this district, wherever bees are kept they have good crops of well shaped apples and heavy yields of alsike clover seed.

Fertilizers for Fruit Growers

Prof. R. Harcourt, O. A. C., Guelph, Ont.

Regarding the influence of fertilizers on quality and flavor of fruit, experiments seem to show that an abundance of phosphoric acid and potash in the food and plant is extremely important, and that, on the other hand, where nitrogen is somewhat deficient the effect on the quality is scarcely perceptible. Considerable work has been done in determining the influence of the several ingredients, that is, the nitrogen, potash and phosphoric acid on the size of individual fruits. With core and stone fruits the experiments are not far enough advanced to warrant definite conclusions, but with berries a greater number of results have been obtained, and these appear to indicate that the lack of phosphoric acid did not materially decrease the size of the berries, as compared with those grown where a complete mixture of fertilizers was used, but when potash was not supplied the berries were small, and where nitrogen was left out they were still small.

There is very little definite data to show that color in the fruit is influenced by the nature of the fertilizers used. It is supposed by many that the use of potash and phosphoric acid will influence the color, and it is quite probable that they do, but I fancy that the influence of these may be very easily overshadowed by the effects of excessive quantities of nitrogen in the soil. It is quite possible, and even probable, that too late in the season there is apt to be so much leaf growth that the fruit is too much shaded, and the leaf and stem growth once strongly started is not easily checked, and as a result we have fruit lacking in color and often really lacking in maturity. It seems likely that if cultivation was stopped early in the season, and cover crops sown, that better results would be got. The cover crop will use up a great part of the moisture and thus check growth and cause ripening of the fruit.

If this be true, cultivation in the orchard cannot be stopped at any set time from year to year, or in one orchard as compared with another. The time to cease cultivation is dependent upon condition of the growth, which will be influenced by the nature of the weather and the richness of the soil in plant food.

It is our intention this coming year to place a number of experiments which we hope to continue for a series of years. We wish to see what effect fertilizers will have on the fruits and also to study the influence of fertilizers and other factors on the color of fruit. I shall be very glad to co-operate with anyone who wishes to take up this matter seriously, in order that we may get the experiment started on some really good basis. It is useless to start experiments on orchard fruits unless they are to be continued over a number of years, so that the full effects of the fertilizers on the trees and fruit can be definitely studied.

Spray Injury

In many instances the omission of the spraying just before the blossoms opened permitted the scab on the pedicles to cause a serious dropping of the young forming fruit, resulting in a poor set and consequently in a light crop. This early fungous infection of the young fruit and pedicles was, we believe, the main cause of the generally light crop of apples throughout western New York last season. This early infection also occurs on the leaves and is responsible for many mysterious cases of lime-sulphur injury. Infection of apple leaves by the scab fungus previous to application is one of the most common causes of spray injury. The injury caused by the fungus admits the spray material to the inner tissues of the leaf more readily. Probably insect injuries also play an important part in spray injury.—Prof. E. Wallace, Cornell University.

Treatment of Evergreen Plants

Wm. Hunt, O.A.C., Guelph

As early in the spring as possible, the plants should be placed outside in the day time on warm days. Avoid putting them out on cold windy days, or placing them in a too sunny position at any time. Often they could be set outside early in May in the day time, and lifted in at night, or covered up if the weather should be frosty. This would shorten the time in their undesirable winter quarters.

About the end of May the plants could be placed where they are to stay for the summer. A too sunny position is not advisable; they should never be exposed to the hot mid-day sun—very little sun is best for them.

Spring or early summer, immediately after the flowering season, is the best time to repot these plants. An application of some kind of fertilizer during the summer will often obviate the necessity for repotting, thus helping to keep the size of the pot or tub reduced

A liquid solution made from one part cow or sheep manure in ten or twelve parts of water and allowed to stand twenty-four hours and sufficient given to about moisten half the soil, and applied every week or ten days will be beneficial. The fertilizer should be applied when the

soil is moist, not when it is very dry or very wet. This will stimulate the growth and give the foliage a bright green, glossy appearance, one of the main attractions in these plants. It is scarcely possible to make this solution too strong for these plants, if the plants have exhausted the soil they are in, and have good root development. Discontinue the use of the fertilizer about the end of July to allow the growth to harden before winter. The plants should be watered liberally during the summer and sprayed frequently with water.

Herbaceous Borders

Arthur E. Thatcher, Arnold Arboretum Boston

In making a herbaceous border, if it is to be permanent, it should first of all be seen that the drainage is good, as few except semi-aquatics will succeed under water-logged conditions. The border should be not less than six feet in width, but much finer effects can be produced if from eight to ten feet can be allowed.

A good background is always desirable, and two excellent subjects for the purposes are climbing roses or a row of sweet peas, but, of course, what to use must be decided by the situation of the border. Trench the soil in the fall to a depth of two and a half to three feet, incorporating plenty of decayed manure or other enriching material, and leave the surface in a rough condition till spring, so that the climatic effects may sweeten the soil and render it in good condition for working.

Early in spring is the best time to plant if the frost is out of the ground sufficiently, and it is advisable, if one is not well acquainted with the subjects, to make a plan of the border beforehand, showing where each variety is to be planted. Harmony of color is of great importance and can only be obtained by making a plan or having a good knowledge of the plants, and of equal importance is the arrangement.

Tall-growing plants must, of course, find positions at the back of the border, but the mistake is not infrequently made of carefully graduating the heights so that the tallest are at the back and the lowest at the front, just as one would arrange geraniums on a greenhouse bench. In this way plants lose their individuality, for much of the charm of the border depends on seeing each separately. The most effective arrangement is obtained by planting some varieties in groups and others as single specimens. By having plants of medium height near the front of the border, much greater depth results and the general effect is altogether more pleasing.

Early flowering varieties should not be too near the edge of the border, unless they retain good foliage till the fall, and others which flower at a later season should be in front of them, so that no bare places are apparent. By a judicious selection a succession of blossoms may be had from spring till late in the fall, but to obtain such a desirable condition it is necessary to be well informed about the large number at our disposal and then they can be ordered from the catalogues.

The Crimson Rambler Rose

Dr. Kalbfleisch, President of the Elmira Horticultural Society, gives the following information regarding the cultivation of the rose shown in the accompanying illustration. "This rose was planted in 1906. The hole was dug large in order to go through the layer of clay which had been thrown out of the cellar some years previously. Good garden soil was then filled in around the plant, and it was mulched with strawy manure and sprinkled well with wood ashes.

"On washdays the whole plant is given a supply of soapsuds, this together with a liberal use of cold water from the waterworks hose keeps the green aphis in check. The rose bush is taken down each fall when the snow comes and covered with about four inches of coarse manure. In the spring I cut the last season's wood back two feet, as I find that I get better bloom when the rose is severely pruned than if left to itself.

Crimson Rambler Rose and Residence of Dr. Kalbfleisch, President of the Elmira Horticultural Society.

"I consider the Crimson Rambler as easy to grow as any vegetable; any good soil will do. Apply plenty of cold water in dry weather; cover with a mulch in winter, and prune severely in the spring. The above is all that is necessary to secure a good showing of flowers in July and August."

Grass for a Shady Lawn

A mixture of seed which is very satisfactory for a shady lawn can be made by using Kentucky bluegrass two parts, Woodland meadow grass two parts, various leafed fescue one part and crested dog tail grass one part. This mixture makes about the best all around grass for shady places that can be obtained, and one which will remain green throughout a much longer portion of the year than either the Woodland Meadow or Kentucky blue grass.

Trim the evergreen hedge just before it starts in the spring. Never prune back of the growing twigs. A hedge should be clipped regularly each year.

The Velvety Lawn

In order to have a nice even lawn, the most important thing is to prepare the soil thoroughly. Plow deep and cultivate thoroughly, then plow, roll and harrow again after having let the ground lay for a week or ten days.

If the space is too small to plow, work just as thoroughly with hand implements. If rough, the land should be levelled with a scraper and float drawn with a team or else with a shovel and hand rake.

The ground should be covered with a coat of well rotted manure and well worked in. Before sowing, go over the surface with a rake and pull off all stones or lumps of dirt that cannot be broken . Rake and roll until the ground is perfectly firm. The easiest method of seeding is to buy the best mixed lawn grass seed from a reliable seedsman. Kentucky bluegrass alone will make a good lawn. A good mixture is Red Top Kentucky Blue Festuca Ovina and a little White Clover. If the lawn is shady use more Red Top. Sow broadcast on some very calm day. Early morning is generally the best time. Sow it thick enough so that you can see it scattered thickly on the ground, forty pounds to an acre is none too much, but the above guide will do for all practical purposes. Rake the seed in as early as possible. Many obtain the best results by sowing a little barley with the grass seed, but most people get best results from sowing alone.

Do not cut very low the first year.

A lawn will respond readily to heavy fertilization. It is a good plan when making the lawn to apply five parts bone meal, five parts acid phosphate, three parts muriate of potash and two parts tankage at the rate of five pounds per square rod and work well into the ground at intervals of three or four

weeks. Dress with nitrate of soda at the rate of half a pound per square yard. If preferred use the same quantities of a good mixed fertilizer, such as is known in the trade as a 5-8-8 goods will give good results.

Among the Flowers in June

Wm. Hunt, O.A.C., Guelph, Ont.

THE month of June is usually the crowded month of the year in the flower garden. Late seed sowing, thinning and planting, hoeing and weeding, trimming and edging walks and borders, will all crowd in during the next few weeks and unless attended to promptly, poor results, and a lot of additional labor later on will be the outcome. The increasing warm weather will also start the many insect pests and enemies of the flower lover into life. In respect to these last named, the old adage, "An ounce of prevention is better than a pound of cure," applies with increased force in connection with work generally in the flower garden during June. Spray the plants for insect pests early and often.

SEED SOWING

Quite a few of the more tender annuals can yet be sown that will give good results during the later months of summer and the early months of autumn, although the main bulk of the annuals should have been sown a week or two ago, or earlier. Among the annuals that usually succeed very well when sown late are the Nasturtiums, Annual Poppies, Portulaca, Candytuft, and even Zinnia and Phlox Drummondi will often give good results if the weather is not too hot and dry. If you have a hot dry corner of the border not yet sown, dig, and then rake the surface very fine, and sow broadcast some Portulaca seed. A very light raking after sowing is all that is needed as the seed is small and fine, and it must not be covered deeply. Poppies succeed well similarly dealt with. The other kinds mentioned require a less hot and sunny position.

All of these seeds would germinate more quickly if given an occasional sprinkling with water, if the weather is hot and dry. It is too late to sow asters, stocks, sweet peas, and most other annuals, to expect good flowering results from them.

SOWING SEEDS OF PERENNIALS

If a new perennial border is contemplated, or new kinds needed for an old perennial border for planting next season, June is the best month to sow the seed for most of them. Columbines, Campanula persicifolia, Campanula carpatica, Pyrethrum roseum, Perennial foxglove, Yellow Marguerite, Shasta Daisy, Veronica or Speedwell, Perennial Larkspur, Gaillardia grandiflora, Sweet William, Cerastim tomentosum, Oriental and Iceland Poppies, Garden Primrose and Cowslip, English Daisy, Forget-me-not, hardy sweet scented garden Violet, Lychnis chalcedonica, the Japanese lychnis (L. Haageana), the Chinese Bellflower (Platycodon), and Heuchera sanguinea, are a few of the best hardy perennials that can be grown easily from seed. Biennials, such as Canterbury Bells and Hollyhocks, can also be sown now.

Paeonies, Dicentra (Bleeding Heart), German Iris, Lemon Lily and Lily of the Valley, are best grown from divisions of the roots, and are best planted late in September or very early in October. Garden lilies, such as Lilium elegans, Lilium candidum (Madonna lily) and the Tiger lilies, should be planted in August or early in September. The bulbs of these should be planted in clumps about six inches or more under the surface of the soil. Do not disturb lily clumps if they still flower well. Lilies should not be disturbed very often, and should never be dug up and transplanted in spring or early summer.

The seed of the varieties of perennials before named as growing readily from seed, are best sown in shallow boxes or in a small specially prepared seed bed. Boxes are best, as they are easily moved about if needed, unless a large number of plants are wanted. A light box 10 x 24 inches, and three inches deep, with holes through the bottom for drainage will do very well. Haddie fish boxes are good for this purpose.

A Clump of Perennial Larkspurs

After the seed is sown they can be placed under a tree or some slightly shaded place where they do not get the hot sun in the middle of the day. Good loamy soil not too rich in fertilizers, with about one-sixth part sand, is about the right soil for seed sowing. It is best to sow the finer seeds in drills about one-quarter of an inch in depth, the coarser seed, such as Sweet William and Larkspur, nearly half an inch in depth.

If a seed bed is made the soil should be of a light nature and be shaded from the sun in the middle of the day until the seedlings have three or four leaves showing. The seedlings should be transplanted about the end of July or early in August, into deeper boxes, or into nursery beds. The plants should be planted about an inch and a half apart. They can be planted out in the perennial borders in groups at this time, if a perennial border is in existence. I prefer transplanting them into boxes or nursery beds as they can be better looked after and protected in the winter, and put out in the border the following spring. It takes two or more years from the time they are sown before they produce much flower. The perennial varieties will, however, flower for years when once established.

A Group of Iceland Poppies in the Perennial Border

If divisions of roots of these plants can be obtained they give the best and quickest results, and are true to type to the parent plant, which seedlings sometimes are not, but roots are more expensive when purchased. Plants or divisions of roots can usually be obtained from nurserymen and florists, or from some neighbor perhaps, who already has a border.

Early in May is the best time for dividing the roots of most of the perennials I have named as growing easily from seed. It is too late to disturb them now. One plant named requires special mention, viz., the Oriental Poppy. These are best sown in boxes, or in the border where they are to grow permanently. They require careful sowing and shading from the hot sun until four or five leaves have grown, when they can be hardened off to the sun gradually. A few minutes hot sun when the plants are very small will be fatal to them. When once well started, they are among the hardiest and showiest of border perennials, but they do not transplant as well as most varieties from the open ground.

A perennial border is one of the most satisfactory features pertaining to any flower garden. A very good collection of plants can be obtained from seed as mentioned, at little cost and labor. With the addition of a few clumps of spring flowering bulbs planted here and there in October, such as Tulips, Narcissus, Hyacinths, Crocus, and so forth, and some of the kinds before named, a display of flowers can be had from the time the snow melts in the spring until it comes again in the fall.

What Amateurs Can Do in June

THE lateness of the season this year has left garden crops backward. Sometimes young vegetable plants that have started find it difficult to break their way through the soil, and are either delayed in appearing, or are killed. Watering will soften the soil and help the plant push its way through. Do not allow any plants to suffer from dry weather.

Warm weather this month will bring plants on rapidly. Watch the weeds and cultivate frequently. Stirring the surface, even if it appears to be clean, will destroy many young weeds which are just starting and save much labor later in the season. It will also conserve the moisture by preventing evaporation.

The garden should be cultivated and hoed as soon as the young plants appear. Do not wait until the weeds get a start.

The only way to secure satisfactory results in the flower garden is by giving the details careful study. Many pleasing effects can be obtaintd by the exercise of a little forethought. Even tropical effects can be had by the proper selection of suitable plants. One of the best of these is the castor oil plant. It can be grown from seed and will grow eight or ten feet high. It branches freely. The plant makes an excellent centre plant for a circular bed.

The canna is a sub-tropical plant, which may be conbined with others with excellent effect. In addition to the fine foliage, it bears brilliant flowers that give color to the assortment. For beds of this kind there are other plants, such as palms, screw pines, ficus, caladiums and aspidistras, which can be put out of doors in summer with advantage.

Plant gladiolus bulbs in full exposure of the sun. Plants for bedding may be placed in the open early this month.

In color schemes, harmony should be the first consideration. One of the best general purpose hardy border plants is the perennial phlox. It gives an almost solid mass of color for many weeks. Give it good, rich soil and keep the grass and weeds away from it. This is about all the attention it requires.

Have plenty of hollyhocks, but do not plant them singly. They are more effective when grouped. Dahlias planted now will usually give better results than if planted earlier.

FIGHT THE INSECTS

Keep ahead of the insects on rose bushes. Give the leaves a good sprinkling of hellebore now, if it has not already been done. Sprinkling the leaves once a day with water alone will keep down many pests. The size of pansy blossoms can be kept up by watering occasionally with weak liquid manure. Get your window boxes ready and put them in position as soon as danger of frost is past. If you want the best results in the flower garden, do not neglect the four chief operations, namely, thinning, weeding, cultivating and watering.

CARE OF THE LAWN

In a newly-made lawn, keep a watch for the weeds, and do not let them get a start. Fertilize with about one pound of a good potato fertilizer to every ten square feet of lawn. This will keep the turf thick and velvety, and the weeds will be smothered out. Keep the mower going. Frequent mowings increase the body of the sward. Do not mow too closely, but often.

WITH THE FRUITS

Weed the strawberry patch and keep the surface soil well stirred, or else covered with a thick mulch of straw. If you are growing strawberries on the hill system remove the runners. Larger and better berries may be secured by this method, but not so many of them.

If you want to grow larger and better fruit on your trees than you have done in the past, thin out the fruit trees this month. Fruit trees and bushes should be sprayed if clean fruit is the object. If the home orchard is small a barrel sprayer will be a profitable investment. Gum or sawdust near the base of the peach or plum trees indicates the presence of borers. Dig them out with a knife or long wire, or they will weaken or kill the tree.

A Flower Garden by the Eastern Sea

The garden of Dr A. Bell, in Cape Breton, is here shown. Note the terraces and the entrance to the Pargola walk on the left hand side. Flowers grow in this garden in great profusion. It is a source of much pleasure to Dr. Bell, inventor of the Bell Telephone, and to his numerous visitors.

It is best to get the hydrangea out of doors as early in the spring as possible (about the end of April), protecting them in a temporary way or carrying them in the house if the weather turns cold, but they should stay out doors from at least the end of May until the middle of October.—Wm. Hunt, O.A.C., Guelph.

Apples are an antidote for drink and tobacco.

Another View in Dr. Bell's Garden

A nearer view of the south entrance to the Pargola walk may here be seen. The pathway is made of large flat stones. Notice the border of flowers on the right and the natural effect of the whole scene.

June Planting Notes

Wm. Hunt, O. A. C., Guelph, Ont

DURING June harden off all plants gradually from indoor to outdoor condition. This is done by standing the plants out when safe to do so, in a partly shaded place away from the hot sun and sweeping winds for a week or so before planting, and where they can have temporary protection from frost as well. Remember the hot sun is often as injurious to tender plant life as frost when they are brought from indoor to outdoor conditions. Do not plant out very tender plants such as Coleus, Salvia, Iresine and Cannas until all danger of frost is over, they are very tender and easily touched by frost. The ground should be quite warm before planting.

TRANSPLANTING SEEDLINGS

Transplant seedlings before they get too much drawn up and spindled, or when about four leaves have developed. Choose dull, showery weather for this work, if possible, or do the work in the early morning or evening. The plants in the seed box or seed bed should be well watered several hours before transplanting; the soil should be moist, not very wet nor dust dry. Take only a few plants from the seed box at a time.

Never allow the roots of any plant, especially seedling plants, to be exposed to the hot sun, or to dry winds. Keep the roots covered with a little soil or a damp piece of paper or cloth until planted. Get the plants back into the soil again as quickly as possible. Plant the roots a little deeper than when in the seed box. See that the roots are not pointing end upwards. Press the soil firmly around the plants. Water the soil well at once, and in such a way as not to lay the seedlings down flat.

Go over the plants a few hours after planting and lift up any leaves out of the soil that may be partially buried, pressing the soil around any stems or roots of plants where needed. Shade the plants from the hot sun, in fact the whole operation of transplanting should be done in the shade if possible, especially in hot, sunny weather. Avoid giving the plants too much water after the first watering for a day or two, until growth has well started. Carefully shading for two or three days, not too dense, and a gradual introduction to more sun each day after that—until the plants have got a good root-hold—and a spraying with water over-head, is much better than soaking the plants too much at the roots after the first watering. After a few days stir the surface soil around the plants with a small hand cultivator to prevent the surface from becoming hard. Surface stirring is better than the application of too much water.

The best implement for transplanting small seedling plants is a small dibber made of a small hardwood broom handle. The dibber should be about five inches in length and pointed to a not too fine point. For large plants the top, or eye end, of a spade or fork handle about twelve inches long, and pointed, will do for this purpose. For large plants there is nothing better than a regular garden trowel. The latter is an implement that should be among every collection of garden tools.

BULBS IN FLOWER BEDS

If you have spring flowering bulbs, such as tulips, hyacinths, crocus, and so forth, in a flower bed, and you wish to plant the bed with plants such as geraniums, salvia, coleus, canna, or large plants of any kind for summer effect, the bulbs should be dug up just before it is time to plant out the summer plants. It is possible, if the bulbs are planted too thickly, to put the plants named in between the bulbs. It is, however, very seldom that bulbs are planted wide enough apart, the ground cannot be thoroughly dug and cultivated with them in the border, so as to give the summer plants the best conditions possible, so it is best to take the bulbs out. The bulbs should be left as long as possible before digging them. Then dig up carefully, with all the soil possible attached to the roots; the leaves and tops should be left on.

Take a small trench in some out of the way corner of the garden about four or five inches deep with a sloping side. Lay

The Pargola Walk in Dr. Bell's Garden

A vista in the Pargola walk is here shown. At seasons of the year when the vines and flowers are in full leaf and flower the effect is most charming. (All photographs by J. G. Davidson, Baddeck, N.S.)

the bulbs thickly three or four deep in this trench so that the top leaves are above the soil. Pack some soil well around and over the bulbs so as to fill the trench, then stick a good sized stake or large label up to mark where they are, so as not to forget the spot when the leaves have dried up. Leave the bulbs here until the end of July; then dig and spread them out on the ground for a week or so to dry.

CARE OF THE BULBS

When the bulbs are dry, put them into shallow boxes and put them away in a cool, fairly dry basement, cellar or room, until planting time in October, when they can be sorted over and planted. Digging the bulbs up again and drying them at the end of July prevents them from starting into growth. Bulbs do not like to be disturbed after they have started to root. Treated in this way, a good percentage are good to plant again for several years.

It is sometimes possible in good, rich loamy soil to cut off the tops of the bulb stems down to the ground after they are through flowering, then cultivate the surface and put in small, quick-growing plants, such as Petunias or verbena plants, or sow some seeds of phlox drummondii, aster, mignonette, candytuft, portulaca, sweet alyssum, or some dwarf growing annual, but none of these are a success as a rule unless the ground is well cultivated first.

Delphiniums (Larkspur)

Mrs. Annie L. Jack, Chateauguay Basin, Que.

Just behind a flower border, where white roses run riot during June, there grows up a clump of tall Delphiniums that make a fine background, with their spikes of heavenly blue, brilliant as the skies. Their height can be judged by the height of the gardener as shown in the illustration, and when their wonderful beauty is seen it is cause for surprise that more attention is not paid to this old fashioned perennial, so grateful for a little attention, yet able to live without it.

There are about sixty species of this plant we know best as Larkspur, that are natives of the north temperate zone, and yet the old favorite "Formosum" can hold its own among the dark blues, while Beauty of Langfort is a creamy white. "Belladonna" is considered one of the finest varieties, and has the quality of constant blooming from June until autumn. Some of the newer hybrids are especially beautiful in various shades of blue, and are sure to blossom all through the summer.

The Siberian Larkspur are noticeable for the lustre of their flowers, resembling silver that has been tarnished by fire, and the old Bee Larkspur is interesting on account of the curious manner in which the petals are folded up in the centre of the flower, so as to resemble a bee, or large blue bottle fly. The name "Delphinium" is derived from Delphin, in reference to the supposed resemblance in the nectary of the plant to the imaginary figure of a Dolphin.

HOW TO PLANT

The plants can be easily grown in June from seed, or by a division of the roots. Given a good locality, for it revels in sunshine, there will be for two months a steady bloom if plants are chosen of such varieties as come in succession.

The soil must be rich and deeply worked, with good drainage, in order to give the best results, with plenty of water in a dry season.

Under these conditions if the flowering stalks are cut down as soon as faded, and not allowed to go to seed, new foliage and flowers will start and give some later spikes of bloom when they have become rare. New perennials come to our notice every year but among blue flowers the Larkspur easily stands first for hardiness, beauty and continuous flowering, while the newer shades of pink and lavender are a very interesting addition.

Delphiniums (Larkspur). See Adjoining Article

Advice about your Garden*

E.F. Collins, Toronto, Ont.

To have a good lawn it is necessary to thoroughly rake out all the dead grass and refuse so as to admit air and light to the roots. Do not cut the grass too short or close to the earth for the first time or two. This allows the bottom growth or cushion of grass to get fairly strong first. This is the grass which makes lawns soft and velvety in appearance.

If sowing grass seed, sow during a rain or just before if you are sure it is coming. Sow the seed thinly, and then sow a scattering of fine soil over the seed. This will assist a much more rapid germination.

Do not make walks and paths in big sweeps and curves purely for landscape effect. In the average city, walks in small gardens are for practical use and should be placed beside the flower beds, or running around the sides and a small square or oval, whichever suits the formation of the garden best.

The best material for a cheap path is ashes or cinders about eight inches deep. If kept well rolled it makes a firm, clean surface for a permanent walk. Second hand brick laid flat makes an excellent walk, provided it is laid by a skilful person. The edges should be bricks laid on their edges.

Never plant all your tall plants at the back of your beds and borders, and so shorten them down to the front. It is too artificial. Nature never does anything like that. Instead, let some of your taller plants stand out boldly from among the shorter ones. Then curve the edges of your borders slightly outward opposite them and you will be surprised at the different effect that will be produced.

Notes on Vegetables

Sweet corn can be sown at any time during June. Now that the danger of frost is past, sow seed of such tender vegetables as cucumber, pumpkin, squash and melons. Sow plenty of seed and do not thin out the seedlings until after the insects have had a chance to do all the damage they will do. Late cabbage and cauliflower can often be planted between the rows of early tomatoes before the latter are done.

To secure early tomatoes train them to a trellis or stake. Pinch off the side shoots and allow all the strength to go to one stalk.

Hand weeding is necessary in the onion patch. The young plants are easily choked by weeds.

If the squash bug is troublesome, lay

* Extract from an address given at the May meeting of the Toronto Horticultural Society.

Onion Growing as conducted on the farm of Donald Chalmers, Essex County, Ont., where a Specialty is made of this Crop.

small pieces of board near the plants as a decoy. The bugs can be killed under the boards every evening.

Thin out onions, beets, carrots, parsnips and such plants that require it. The more space given to these plants the larger they will grow, but better quality is obtained by allowing them to stand fairly close together, thereby keeping them on the small side.

The best time to water the vegetable garden is in the evening. When this is done the water soaks into the soil during the night and the surface soil is not baked hard as it would be if the watering was done while the sun was shining.

Success Growing 82 Varieties of Vegetables

George K. Baldwin, Toronto

(Continued from previous issues.)

IT is time to get your hoe sharpened, repair your hose and other tools, and start right in at the top of your garden by pinching out superfluos runners and leaves of the musk melons, cucumbers, squash and marrows, etc., keeping the hoe going constantly, killing the weeds and loosening the soil, watching for insects of all descriptions, sprinkling a little sulphur around the turnips, powdering the young cabbage and cauliflower plants, with a mixture of pyretherum powder and common flour in parts of four of flour to one of pyretherum powder. Beets want nothing but the hoe. Tomatoes want attention, now that they have started to throw up laterals and suckers. The latter should all be taken off, pinch out head of plant and allow four of the strongest of the laterals which are to be trained up four sticks, about four feet above the ground, and stick into the ground at an angle of about seventy-five degrees, allowing each of these to run up the sticks until the third set of fruit flowers is formed, when the tips should be pinched out,, which will tend to throw the sap back into the fruit which is now forming, all of which fruit will ripen before frost sets in. You may then let one more lateral come on each branch so as to form more later fruit if you want green tomatoes for pickling. Pick all the fruit as fast as it ripens to give the rest a chance to fill out.

In reference to the hose, do not spray the foliage of any vegetables, in fact do not use the hose at all, unless there is about a two weeks dry spell in the growing season; you may then give the ground a good soaking once or twice a week, especially the celery. Carrots want nothing but the hoe, onions need a little sulphur or lime sprinkled around them for onion maggot, and keep ground well stirred and friable. Stake up the peas, if of a climbing variety, as soon as needed. You may feed onions, celery, marrow and squash, with a little nitrate of soda once a week, either dry, or preferably by dissolving a quarter pound to two and one-half gallons of tepid water. As soon as celery has grown up about eight or ten inches, tie up loosely with raffia, and three weeks before required for table use, start your bleaching operations by putting a ten inch or twelve inch board along each side, keeping them up close to the celery by driving in stakes at each end. For the winter celery I prefer to bleach by earthing up gradually to within three inches of the top of the leaves, taking care not to let any of the earth get down in the heart of the plant. Beans need only the cultivating act and keeping the beans picked off as fast as they mature. Leeks require to be treated exactly the same as celery, only the bleaching must be done with earth. Leeks are also partial to nitrate of soda. Salsify needs nothing but the hoe. Cucumber should have the earth constantly stirred and the leaves sprinkled with sulphur. The same applies to winter radishes.

Great attention must be paid to the egg plant from the time it is transplanted to the garden until the fruit is well formed, as if your neighbors have a patch of potatoes the potato bugs will leave your neighbor's garden and perch themselves on the egg plant, and they will not be long there until the foliage has disappeared, so fond are they of this plant. Treat citrons the same as melons.

My reason for using the word success in the heading of this paper has a twofold character, first, because my wife never has to spend a cent on vegetables for the table, and we frequently have three or four varieties on the table at the one time, growing sufficient in the garden to do us the year around, by storing in the cellar for winter, with the exception of potatoes, the art of which I have not yet acquired, also from the fact that I was successful in securing the following prizes at the National Exhibition at Toronto, competing against market gardeners and others. First prize for collection of tomatoes, containing twenty-two varieties; second, for greenhouse cucumbers; second for vegetable marrows; third prize for Kohl Rabi; and last, but not least, third prize for a collection of vegetables containing no less than sixty varieties. I might incidentally remark that the gentleman who took fourth prize in this was a market gardener of repute who has as many acres as I have feet, from which to select his collection.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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6. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each Issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed.
THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

A SIGN OF THE TIMES

The announcement that the fruit growers in Durham County, Ont., as well as in several other districts, have formed a co-operative fruit growers' association, and will give careful attention to their orchards and apple pack is a sign of the times. Co-operation is extending in Ontario and throughout Canada. We venture the prediction that more co-operative associations will be launched among our fruit growers during the next three years than have been during the last fifteen, and that a larger proportion of them will prove a success.

The statement has been made frequently that the farmers and fruit growers of Canada are too independent to work together. This has never been true. Were it true it would mean that we are not intelligent enough to see that we can advance our interests best by working unitedly rather than as individuals. The fact is we possess as large a degree of intelligence in these matters as the fruit growers of any other nation. The trouble hitherto has been that conditions in Canada have not been ripe for the launching of co-operative enterprises. Now that railways are opening new stretches of country, population increasing, telephones becoming general in their use, roads being improved and new markets being opened up at distant points the era of co-operation is dawning.

Failures there are bound to be. Hereafter, however, instead of being taken as signs that co-operation cannot be expected to succeed in Canada, they will be searched for the object lessons they teach. Each failure will help other organizations to make greater successes. The favorable reports from Great Britain this year concerning the consignments of apples from the Simcoe and Newcastle Fruit Growers' Associations are only another evidence that the day is here when fruit growers must co-operate before they can attain the greatest measure of success.

THE BROWN-TAIL MOTH

As the fearful character of the ravages of the Brown-tail and Gipsy Moths in Massachusetts become better known we may well give our warm support to the commendable efforts of the Dominion Department of Agriculture as well as of the Provincial Departments of Agriculture in the Maritime Provinces to prevent these pests from becoming established in our eastern provinces. Ten years ago Massachusetts had the matter well in hand, but the indifference of the public to the danger resulted in a relaxation of the effort to control the pests, and now the state is spending tens of thousands of dollars a year with a greatly lessened prospect of success. In the affected districts of Massachusetts real estate has fallen in value about twenty-five per cent. during the last five years.

The body of the moth is covered with split hairs which are barred like a quill of the porcupine and exude a poison. These hairs, blown on the wind or falling from the trees, as the moth itself very frequently does, on coming in contact with the human flesh, will sometimes poison the system so that the afflicted one has frequently to take to bed. It is becoming known that the Brown-tail Moth has been found in Nova Scotia, and already tourists in writing to hotels for accommodation, are beginning to ask if the Brown-tail Moth exists in the locality.

This is the time for every possible step to be taken to control this pest and to prevent its further introduction into our eastern provinces. A dollar expended carefully now may save the necessity of spending several thousand dollars a few years hence.

BRITISH COLUMBIA ENTERPRISE

The Fruit Division of the British Columbia Department of Agriculture is not likely to be accused of lack of enterprise. Last year it had its special representative visit the leading fruit markets of the prairie province during the summer months and report weekly the condition of these markets, the character of the demand likely to prevail during the next few weeks, the style of pack desired and furnish other similar information. These reports proved of great value to the fruit growers of the province.

This year a still more comprehensive system of market reporting is being adopted. Agencies are being established in the principal distributing markets of the west and these will forward regular telegraphic reports to Victoria of local conditions which will be revised and a summary wired to the affiliated fruit growers' associations of the province. In addition a man will be maintained across the United States border to the South who will report on market conditons there, and thereby keep the fruit growers of British Columbia in touch with what their principal rivals to the South are doing. By telegraphing these reports the department expects to save at least five days in the transmission of this news.

While, except in the Niagara District, there is not the same need for such prompt reports here in the east, an effort might well be made to distribute more general information and more promptly in regard to fruit conditions. We now have a variety of reports, but none that are fully satisfactory.

"A CLEAN-UP HALF-HOLIDAY

On the editorial page of a recent issue of the Summerland (B.C.) Review appeared the following notice:

"MUNICIPALITY OF SUMMERLAND.

"I hereby proclaim THURSDAY,
"May, 18th, 1911, a Civic Holiday, and
"call upon all Summerland citizens to
"observe the same by participating in
"a general clean-up.

JAS. RITCHIE, Reeve."

While the foregoing notice has some amusing features, inasmuch as it leaves us in doubt as to the character of the clean-up needed, and gives reason for us to conclude that the citizens of Summerland must have been in great need of a "clean-up" when a full day off was required to attend to it, it also has its commendable side. In too many of our smaller towns and cities such an annual "clean-up" is needed. The announcing of a public holiday in order that the work might be attended to would not only lead to an improvement in the appearance of the municipality, but also lead the citizens to take a greater interest in maintaining the surroundings of their homes in a more neat and attractive condition.

Last year the experiment was tried in Goderich, Ont., of having the scrapings from the lawns and gardens of the town left in front of the houses on a certain day where they were collected by vehicles sent around by the municipality. It proved a

success. Summerland has set an example which some other municipalities might well imitate, although perhaps a half-holiday might be sufficient for most.

MOTHERS' DAY

Reports received by THE CANADIAN HORTICULTURIST show that Mothers' Day this year was more widely observed in Canada than ever before. In such leading centres as Montreal, Ottawa, Toronto, and Winnipeg the demand for flowers was so great many florists were bought out and a large number of people who desired to observe the day were disappointed on account of their inability to obtain the flowers. In Toronto especially the ministers seem to have given the movement their hearty support. A number of them preached appropriate sermons and a large proportion of the members of their congregations attended the services wearing white or colored carnations.

The movement has so many commendable features it should continue to grow in public favor. The view is frequently expressed that the young people of to-day do not show the same reverence for their parents that was once common. The growth of our modern cities with all their facilities for gratifying the love of the exciting is blamed to some extent for this condition. Anything, therefore, which will serve to draw the attention of the careless public to all that we owe to our Mothers and lead us to show our appreciation, in a simple yet pleasing manner, should be supported.

The fact, too, that the observance of the day has a strong tendency to create a love for flowers in the minds of thousands of people who otherwise might never purchase a flower for any other reason is to be commended. Buying flowers for the observance of such a custom will be likely to soon develop into a habit of buying them for the celebration of other occasions as well as for their natural beauty. Their cultivation in the home will then follow.

One of our subscribers in Hamilton has called our attention to the fact that the celebration of Mothers' Day, the credit for launching which is generally credited to Miss Anna Jarvis, of Philadelphia, is really a revival of "Mothering" Sunday, as observed for many centuries in the Old Land. On Mothering Sunday, the Mid-Sunday of Lent, it was the practice to go and see one's parents, especially the Mother, taking to them some little present such as a cake or a trinket. A youth engaged in this duty was said to go "a-mothering," and thus the day itself came to be called Mothering Sunday. This custom is one of great antiquity. While she cannot be given credit for originating this practice, Miss Jarvis is entitled to credit for having introduced the use of flowers in connection with it. Next year we feel that the Horticultural Societies throughout Canada should take hold of the movement energetically and lead to its more general observance.

For many years the Montreal Witness has stood for all that was best in daily journalism in Canada. Its rigid adhesion to the highest principles and its refusal to cater to special interests has won for it many friends and made it strong enemies. For years it has been known that it has refused to carry all liquor or questionable advertisements of any kind. Its stand in this respect has generally been admired, but to only a limited few was it known that its action was costing it hundreds of thousands of dollars. It came, therefore, as a shock recently when it was announced by its publishers that for some years the Witness has been losing money steadily, and that unless its subscribers gave it certain definite support it would have to suspend publication. Readers of the Witness were asked to help double its circulation within a limited period. The response that this appeal has received from one end of Canada to another must be most gratifying to the publishers. Thousands of people throughout Canada are uniting to maintain this excellent publication. Readers of THE CANADIAN HORTICULTURIST who would like to assist may do so by subscribing for the Daily Witness for $1.00 a year or for the Weekly Witness for 65c. a year as well as by getting their friends to do the same.

PUBLISHER'S DESK

The illustration on the front cover of this issue of THE CANADIAN HORTICULTURIST is from a photograph taken by G. H. E. Hudson in the strawberry patch and orchards of Mr. Dyman, Upper Flats, Kelowna, B.C. The scene is one that is typical of the fruit districts of that great province. The enthusiasm of the fruit growers of British Columbia concerning their industry and their province is now becoming more general in the other fruit sections of Canada, and this is going to prove to the advantage of all.

* * *

Mention was made in this department last month of the rapid increase of the circulation of THE CANADIAN HORTICULTURIST. This, as might be expected has been due to the increased interest being taken this year in the work of our horticultural societies as well as in fruit and vegetable growing generally. Not only has the number of new subscriptions received to date from individuals shown a marked increase as compared with those obtained during the corresponding period last year but the subscriptions forwarded by various organizations have also shown a large increase. The Ontario Fruit Growers' Association this year has sent us over 1,200 subscriptions as compared with about 900 last year. New horticultural societies have been formed at Berlin, Weston, and other points which have either taken THE CANADIAN HORTICULTURIST for all of their members or have sent us nice lists of subscriptions. Societies which have not taken THE CANADIAN HORTICULTURIST during the last year or so have commenced to take it again, including the London and Walkerville societies. Other societies which have stood by THE CANADIAN HORTICULTURIST for years are sending us larger lists than ever before. All this we find most encouraging. It means that if it will continue but a little longer we will soon be able to still further enlarge and improve THE CANADIAN HORTICULTURIST. We have numerous plans for the betterment of THE CANADIAN HORTICULTURIST, but their introduction depends largely upon the support we receive from our readers.

* * *

The September issue of THE CANADIAN HORTICULTURIST promises to be the largest and best we have ever published. A special design in colors is being prepared for the front cover. It will be a combined Exhibition and Packing Number. Copies of this issue of THE CANADIAN HORTICULTURIST will be distributed at the leading fall exhibitions throughout Canada. Every department of the paper will be unusually strong, and in addition we will have a number of special features. Leading authorities in Canada will contribute articles dealing with the picking, grading and packing of fruit, and these will be profusely illustrated. The issue will be much enlarged in size. When our readers receive it we expect that they will see how rapidly we are succeeding in our aim to give them a paper, everything considered, second to none of its class on the continent.

* * *

Elsewhere in this issue appears an announcement of our new premium offer. We have just completed arrangements whereby we can offer one of these excellent fountain pens delivered free of cost to anyone sending a list of five new subscriptions to THE CANADIAN HORTICULTURIST taken at 60 cents a year. This pen is guaranteed by the manufacturers, and a copy of the guarantee goes with each pen. Tell the boys and girls about this offer. A fountain pen is just the thing they need for examination time, and they will be glad of this opportunity to get one. The pen is so attractive that anyone will be pleased to own one. See a few of your friends and get them to subscribe. You will be doing them a good turn by getting them in touch with the valuable information contained in THE CANADIAN HORTICULTURIST, you will be helping extend the influence of THE CANADIAN HORTICULTURIST by increasing the number of its subscribers, and you will receive a handsome premium in return for the time spent in securing the subscriptions. If some of your friends are too far away, sit down and write them a short note suggesting that they subscribe to THE CANADIAN HORTICULTURIST. Ask them to enclose your note when sending their subscription to us and we will credit you with the subscription the same as if you sent it yourself. Try it. You will find it easy to get one of these splendid fountain pens.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Two New Societies

Two strong horticultural societies have been organized at Sudbury and North Bay by Mr. J. Lockie Wilson, Superintendent of Agricultural and Horticultural Societies. Each starts out with a membership of more than a hundred. They have been formed too late to enable them to draw a government grant this year, but they will participate in next year's grant. Mr. J. F. Black, of Sudbury, is the secretary of that society, and Mr. A. C. Casselman, the secretary of the North Bay society. Prof. H. L. Hutt, of the O.A.C., Guelph, gave his illustrated lecture to the members of the North Bay society which was much appreciated.

Weston

The Weston Horticultural Society was organized last January with a full list of officers and eighty members. The society arranged to supply the members with some bulbs, and these were distributed a short time ago. The society meets on the second Friday of each month. At the May meeting it was decided to order THE CANADIAN HORTICULTURIST for each member for the balance of the year.

Arrangements are also being made to supply bulbs to the members in the fall. The society will hold an exhibition in the fall, when prizes will be given for the best

kept lawns and for flowers grown by the members. Several of the officers and members are enthusiastic gardeners, and it is expected that the society will increase its membership in Weston ,which is sure to be a growing place in the near future.—Joseph Nason.

Winchester

A horticultural society was formed in Winchester last January, known as the Winchester Horticultural Society. The President is Mr. J. F. Ault. Already the membership is one hundred and four. For this year the society is planning to improve the grounds of the Public and High Schools and the Town Hall and churches by planting trees, shrubs, and flowers, and the streets of the town by planting trees and cutting down all weeds.—James Thomson, secretary.

Caledonia

This society was organized last year with 52 members. This year we have 75 members. Much private work is being done that hitherto was never accomplished. We are beautifying the town park by planting trees, shrubs, and flower beds in the Town Hall square. The ladies are assisting us, and the society is booming.—A. T. Mitchell, secretary.

Tillsonburg

The prize lists are being distributed for the fruit and flower exhibiton that the Tillsonburg Horticultural Society will hold in the rink on Friday, September 1st. The exhibition will be open from 2 until 5.30 and from 8 until 10.30 p.m. There will be a promenade concert orchestra with good music. The rink is to be brilliantly lighted and decorated, and the ladies of the society will have ice-cream and other refreshments on hand. The admission to other than members will be 15c and children 10c.

Prizes varying in value from 25c to a dollar are offered for such flowers as asters, begonias in pots, Canterbury bells, candytuft, cannas, carnations, geraniums, fuchsias, dahlias, balsams, any kind of hanging baskets, and many other varieties. The members this year are given their choice of three different options. The secretary is W. W. Livingstone.

Picton

The Picton society are offering four prizes this year for the best kept lawns. Experience with this form of competition during the past four years has shown it to be productive of much good. Prizes are offered for the best kept lawn and boulevard, where the work is entirely in the hands of the owner or the members of his family and other prizes for where the lawn is kept by either the owner or the tenants of the property or by paid laborers. The prizes will be given for the greatest visible improvement in the premises since last year. The prize winners of other seasons will not be allowed to compete this year.

Members of the society are supplied with THE CANADIAN HORTICULTURIST and with 24 of Groff's Modern Gladioli Bulbs. The secretary has issued a little circular to the members of the society giving instructions as to the best methods of growing this lovely plant.

Toronto

A free flower show was held by the members of the Toronto Horticultural Society early in May. Arrangements were made for an exhibition of spring flowers such as narcissus, tulips, daffodils, hyacinths, and other spring flowers including some varieties of wild flowers. The object of the exhibition was largely to help those interested with their spring gardening operations, and to show them what to grow. The public was admitted free.

St. Catharines

The St. Catharines Horticultural Society expects this year to have a membership of over 700. The rapid growth made by this society is due almost entirely to the interest taken by the officers and directors who use every opportunity to interest their friends and acquaintances in becoming members. Only one regular canvasser has been employed, and this person worked only part of the time.

The society this year is distributing aster seeds free to school children of the city, and intends also distributing gladioli bulbs, but making a small charge for them. For each spike or bloom shown at the fall exhibition it is proposed to give the children a number of tulip bulbs.

Port Hope

W. T. Greenaway, secretary of the Port Hope society, reports that the membership of the society is increasng rapidly. Much more interest is being exhibited in arranging lawns and shrubberies and beautifying the town generally. The influence of the society is shown in the interest taken in civc improvement, laying out of parks, and beautifying of public buildings, schools, etc.. The funds are chiefly used in giving a liberal list of premiums.

Henry Foreman, secretary of the Collingwood society, states that the chief work of the society, in co-operation with the Town Council, is the laying out of Victoria Park, and the improvement of parks and squares and the beautifying of the town generally.

Proves Its Merits In All Climates

Selected NORTHERN GROWN Nursery Stock, supplied from our Nurseries near Montreal, was used in the planting of the Grounds shown in the above illustration, at Manor Richelieu, Murray Bay, Que. It has succeeded splendidly, even in this extreme climate. Our hardy Stock gives satisfaction under the most exacting conditions. Let us tell you more about it. Send a post card for our finely illustrated catalogue. It is free.

THE CANADIAN NURSERY CO., Ltd., 10 Phillips Place, Montreal, Que. Nurseries—POINTE CLAIRE, Que. A Few Reliable Salesmen Wanted

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More **SWIFT'S ARSENATE OF LEAD** is made and sold than that of all other manufacturers combined.

THERE IS A REASON. SWIFT'S ARSENATE OF LEAD carries the highest analysis of Arsenic oxide. It is free from impurities. It mixes readily with water. It sticks and lasts. It positively will not burn foliage.

SWIFT'S ARSENATE OF LEAD is used by nearly every Fruit Growers Association in Ontario, and by the Department of Agriculture.

SWIFT'S ARSENATE OF LEAD combined with **NIAGARA LIME-SULPHUR** is the spray that gave such wonderful results in this province last year.

All sized packages. Reasonable prices. We can make immediate shipments. ORDER NOW.

Niagara Brand Spray Co., Limited, - Burlington, Ont.

Fruit Shipments to Glasgow

Reporting to the Dominion Department of Agriculture, Jas. A. Findlay, cargo inspector at Glasgow, has the following to say regarding shipments of Canadian fruit to that port for the year ending March 31st last:

"The Canadian apple trade with Glasgow this season has been of an unsatisfactory nature, the importations being the smallest on record for a considerable number of years; the qualty also was disappointing. At moment of writing barely 81,000 barrels and 15,330 cases have arrived, as compared with last year's totals of 212.165 barrels and 31,843 boxes from Ontario and 38,604 barrels and 189 boxes from Nova Scotia. There were no direct shipments this season from Nova Scotia, though a few hundreds arrived in Glasgow via London by rail and coasting steamer.

"This shortage from Canada was partly met by increased arrivals from other sources, but not in sufficient quantities to supply the demand, consequently prices ruled higher on the average for all varieties than during the 1909 season. The shortage mentioned resulted in larger importations of barrel stock from various districts of the United States, viz., Virginia, Maine, and the Western States. The Virginia fruit was of excellent quality; Maine Baldwins very fair, but Western State apples poor in size and quality. Larger quantities of box fruit from California, Oregon, Washington, etc., arrived; the Oregon Newton and Spitz have been of excellent quality and pack and received universal praise.

CONDITION

"The condition of Canadians on arrival throughout the season was generally very fair; a few parcels among the early summer fruit arrived over-ripe and towards the end a small percentage indicated frost effects. With these exceptions arrivals were in sound order as a rule. The quality, as stated, was unsatisfactory; the high prices conduced to shipment of somewhat inferior grade and generally the pack was irregular, very few choice parcels of fruit arriving.

"Good winter stock was very scarce; Baldwins generally lacked color. Spys throughout lacked color and keeping quality, and were also scarce. The feature of the Ontario shipments was the pack of the Norfolk fruit growers, several of their shipments being of choice grade and quality. The Newcastle fruit growers also placed one or two good parcels on this market; these with a limited few smaller shippers forwarded reliable fruit.

BOXES

"The box apple trade in Glasgow is one of increasing dimensions, and this year's trade indicates that Glasgow offers an outlet for a large proportion of high class boxed fruit at all periods of the recognized apple season; boxes containing apples characterized by uniformity of size and color, with skins free from blemish and clean for the variety, fairly bold in size—but not exceedingly so nor irregular in shape so as to be deemed coarse—will return to shippers a much enhanced price over the barrel equivalent.

"The barrel, I presume, will always retain its place as the popular commercial package, but very large quantities of boxes were shipped here from United States districts this season, influenced no doubt by the scarcity of Ontario and Nova Scotia barrel supplies. Buyers are becoming increasingly discriminating regarding value

PAEONIES

June is the month of Paeony bloom; September is the month for planting Paeonies. We do not sell cut flowers at retail, but any reader of The Canadian Horticulturist who purposes buying Paeonies for planting next Setpember may have specimen blooms, while they last, of any of 40 varieties that we shall offer in our Fall Planting List to be issued 1st of August next—not more than 2 blooms of any variety, correctly named, to any buyer and not less than 10 blooms in any order at 25 cents for 10 blooms, to cover cost of packing and postage. Stems will be about half the usual length. This offer is good until 15th June, and not longer. Postal note with order, please.

JOHN CAVERS
Douglas Gardens, Oakville, Ont.

Established 1890 Long Distance Telephone M 3102

H. J. ASH
(Member Toronto Board of Trade)
WHOLESALE FRUIT MERCHANT
44 Church St., Toronto, Ont.
SPECIALTY: Fancy Home Grown Fruit and Vegetables
SEND FOR STAMP AND PAD

Get the **PLANET JR. Guaranteed Farm and Garden Implements** and make more money. Write today for 1911 catalogue free.
S. L. ALLEN & CO., Box 1106G., Philadelphia, Pa

UNUSUAL PEACHES

WE HAVE A BLOCK OF OVER

125.000 PEDIGREED PEACHES

FOR THE COMING SEASON'S TRADE

Every one of these trees is propagated from a select bearing tree loaded with ripe peaches when the buds were cut and they are budded on transplanted seedlings. ¶ Such stock must be true to name and the best obtainable. We believe that this block of trees is unique in the fact that not one bud was cut from the nursery row. We cannot sell this stock at low prices. It costs too much to produce, but consider the trees cheap at the reasonable prices at which we offer them. ¶ Every tree is guaranteed. Orders should be sent in at once as over 25,000 are already reserved.

AUBURN NURSERIES - QUEENSTON, ONT.

Best Prices For You

We are in close touch with the best market for all kinds of early vegetables and fruit. We are in a position to realize the best prices for your produce. Send us a trial shipment. Write us to-day for shipping stamp, which we furnish free.

The Dawson Elliott Co. Cor. West Market and Colborne Sts., Toronto

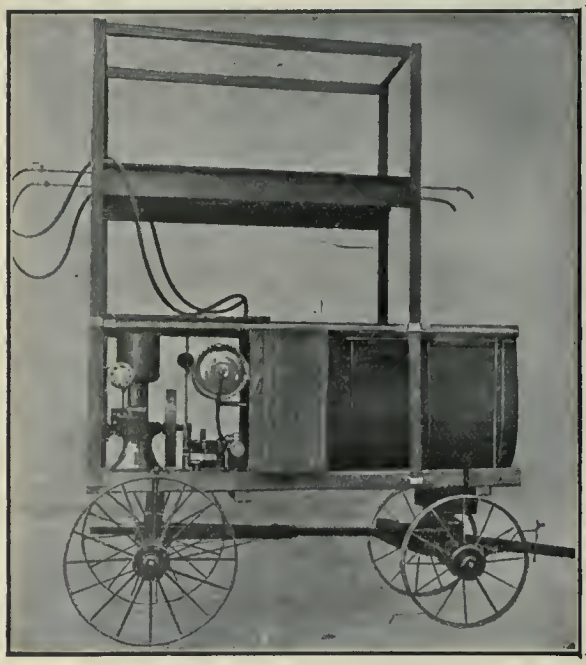
BOXES HAVE YOU ORDERED YOUR FRUIT BOXES?

We make a specialty of fruit and apple boxes, and are prepared to supply you with any quantity on short notice. Place your orders now for the packing season Write to-day for prices.

Correspondence solicited for Co-operative Associations

BARCHARD & CO. Box Manufacturers

151 DUKE STREET, - - - TORONTO.



This Model C. Spramotor was awarded four Gold Medals, two at National Horticultural Congress, one at Dominion Exhibition, St. John, and one at Provincial Exhibition, Halifax, N.S., 1909-1910. "There are reasons."

Mr. J. C. Harris, of Ingersoll, who is using 4 Power Spramotors for eight years, writes about the latest Model C.

"I have used your Model C. Spramotor, 1910 Gasoline Power Sprayer almost every hour of fine weather during the past four weeks, with the exception of four days.

"We have had no break-downs, practically no delays. It works perfectly, and so far has given the very best satisfaction in use in every way. It is all you claim it to be."

We have been manufacturing Spramotors for 15 years for spraying purposes only. "That is the reason." Particulars free.

AGENTS WANTED

HEARD SPRAMOTOR CO.

1390 King Street

LONDON, - ONTARIO

SPRAY FOR PROFITS

Big, sound, juicy apples are the only ones that bring big profits.

VANCO LIME SULPHUR SOLUTION

means sound fruit that brings the top price. "Vanco" destroys Scale, Scab, Aphis, Mildew. "Vanco" keeps the trees clean and the buds healthy.

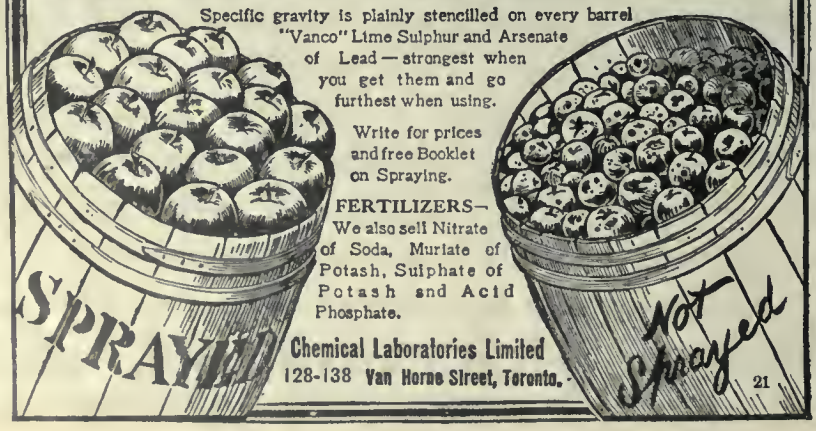
You couldn't possibly get a greater amount of Sulphur in Solution than you get in the Vanco barrel. It is better in every way than home made mixtures.

Because it is uniform in strength and quality

Specific gravity is plainly stencilled on every barrel "Vanco" Lime Sulphur and Arsenate of Lead — strongest when you get them and go furthest when using.

Write for prices and free Booklet on Spraying.

FERTILIZERS— We also sell Nitrate of Soda, Muriate of Potash, Sulphate of Potash and Acid Phosphate.



Chemical Laboratories Limited

128-138 Van Horne Street, Toronto.

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of appearance and if Ontario orchardists are going to capture and retain a portion of this high class box trade, decidedly more scientific care of orchards and more careful selection of fruit in packing is essential. I am satisfied that an increased quantity of boxed Ontario apples can be absorbed here, and it lies with the Ontario packers to cater for the Scotch consumer's eye as well as his palate. The popularity of the King, Spy and Baldwin on this market is admitted on all hands and, granting the excellence of flavor in these varieties, buyers are influenced by uniformity of size, evenness of color and cleanness of skin. The most popular size of Oregon Newton Pippins here is from 96 to 112 apples per 40 pound case, the latter size preferred.

BRITISH COLUMBIA FRUIT

"There were direct shipments of 1,653 boxes of apples this season from British Columbia. These arrived in good condition and participated in the high prices ruling. One parcel from Kelowna district, composed of Jonathan, Spitz, Newton Pippin, McIntosh Red, and Grimes Golden, was of excellent quality and condition.

PEARS

"The importations of Canadian pears to Glasgow indicate a growing demand, as 7,885 cases and half cases and 69 barrels were imported this year as compared with about 5,000 packages last year. Unless in seasons of very plentiful crops in France and southern England (whence a large proportion of the Glasgow supply comes) increased quantities of pears can be absorbed from Canada. Of the total receipts all, with the exception of 225 packages, were carred in refrigerator round 35 to 38 degrees, and all arrived in good condition, except a few barrels of Anjou, which were decaying.

"The half case package is the favorite package for all varieties except Keiffers, which may safely be packed in the 40 pound box or even in barrels. Very large quantities of Keiffers are marketed here from the United States, the bulk of which are sold to north and north-east coast of England buyers who attend the Glasgow market; and indications point to an increased demand for pears, both of Keiffer and more choice varieties, in coming seasons."

Recent Bulletins

Valuable bulletins that have reached THE CANADIAN HORTICULTURIST recently include the following: Insects Injurious to Peach Trees in New Jersey, No. 235, issued by the New Jersey Agricultural Experiment Station; Spraying Peaches for the Control of Brown Rot, Scab and Curculio, Farmers Bulletin 440, issued by the United States Department of Agriculture, Washington; Planting the Commercial Orchard Bulletin 201, by the University of Wisconsin Madison, Wisconsin; Some Insects and Mites Attacking the Peach in Colorado and Two Plant Lice of the Peach, Bulletin 169 Thinning the Winesap and Winter and Frost Injuries of Fruit Trees, Bulletin 170 The Colorado Raspberry Industry, Bulletin No. 171; Notes on a Dryland Orchard, Bulletin 173; and the Potato Industry in Colorado, Bulletin 175—all published by the Experiment Station, Fort Collins, Col.; The Potato Eelworm, Bulletin 76, University of Nevada Reno, Nev.; and Orchard and Garden Spraying, Bulletin 121, University Farm, St. Paul, Minn.

Your splendidly selected articles on orcharding are most encouraging and educative.—W. G. L. Spaulding, Toronto.

GRASSELLI

ARSENATE OF LEAD

Arsenate of Lead is being used more and more in the fruit centres of the province of Ontario. The question that interests every fruit grower is this:

Is there Difference in Arsenates of Lead?

Yes. There is a big difference.

Let us suggest some points which we believe every grower should consider before placing an order for Arsenate of Lead:

1st. You wish an Arsenate of Lead that will not burn the foliage

2nd. It is desirable that an Arsenate of Lead mix readily, yet retain its adhesive qualities.

3rd. An Arsenate of Lead should contain the proper killing power.

Grasselli Arsenate of Lead contains no free acids or adulterant ingredients, contains a very low per cent. soluble Arsenic, and we have yet to learn of a case where it has burned the foliage, even though it may have been used double strength. It will mix readily and has a reputation for **adhesiveness** and **high killing power.**

Grasselli Arsenate of Lead has been used in the Niagara, Oshawa, Picton, Wellington and other districts for the past several seasons, and with every success.

Write us for prices.

For Sale by ROBERT THOMPSON, President

St. Catharines Cold Storage and Forwarding Co.

St. Catharines, Ontario

THE GRASSELLI CHEMICAL COMPANY

CLEVELAND, OHIO

SELL YOUR FRUIT

AT

THE BEST PRICE

¶ Good Boxes do not necessarily mean good fruit, but poor boxes always mean poor fruit. Place your fruit on the market in the best selling condition possible, by using the best boxes obtainable.

¶ Hundreds of progressive fruit packers use our boxes. They recognize their money-making value in helping to place their fruit before the buyer under the most favorable selling conditions.

¶ FRUIT BOXES of every description are a specialty with us. Write for prices.

The Firstbrook Box Co. LIMITED

TORONTO, ONT.

VERMOREL

MANUFACTURER AT VILLEFRANCHE, FRANCE

Sole Agents for Canada:
De VIGAN & Du LAILLANT
60 St. Gabriel, MONTREAL, QUE.

Vermorel's Sprayer
$12.00

Our Sprayer is entirely made of Red Copper, and will last a lifetime

Sprayers, Sulfur Dusters

France is undoubtedly the first country in the world for growing

Fruits and Grapes

VERMOREL Machines are the Standard in France

Now is the season to buy a VERMOREL Machine and be sure to get a good crop

Insist on getting the name of "Villefranche" on each Machine. It is the only genuine

Vermorel Sulfur Duster
No. 1, $10.00

With Double Action
$12.00

Our Dusters will make the work of a dozen hand blowers and do it better. Try it!

BEZZO'S FAMOUS PRIZE ASTERS

Prize at New York State Fair, September, 1910

Vick's Violet King, Mikado White, Mikado (Rochester) Pink, Vick's Early Branching, Rose and White, 20c per dozen, $1.00 per hundred.

Vick's Branching Pink, White, Rose, Lavender Semple's Pink, Royal Purple, Daybreak and Purity, truly the aristocrats of the aster family; 15c per doz., 75c per hundred; packed and labeled separately in wet moss. All plants sent by express and guaranteed to arrive in good condition. Express prepaid on orders over $2.00. Remit by money order.

C. MORTIMER BEZZO, - - - - - - - BERLIN, ONTARIO

The Commercial Review

OF VANCOUVER, B. C.

Will publish a Special Copyrighted Article in the Issue of May 20th, on

"The Timber Lands of British Columbia from a Commercial Standpoint."

To those interested in B.C. Timber a copy will be sent on request, as long as the supply lasts

The Commercial Review

543 Hastings Street, - VANCOUVER, B. C.

Some History

about *Typewriters*

Modern and Ancient

CHAPTER I

TYPEWRITER HISTORY is making fast. Real action commenced 14 years ago---with the Underwood.

FOR 20 years the typewriter has been evolving and finding its place in business.

THE Underwood was the first present-day typewriter. It was radical. It violated all old-time ideas about typewriter construction.

IN the face of sneers, jibes, ridicule, and opposition from other makers it gave the public the first writing-in-sight typewriter.

THE Public applauded---and bought. Naturally they preferred to see what they wrote as they wrote it.

HERETOFORE typewriters had been built on the simplest plan mechanically, but up-side-down with the writing out of sight. It was time for something better.

United Typewriter Co.
Limited
TORONTO

Returns from one Crab Apple Tree

Miss Stewart, near Homer, Lincoln Co., Ont., had one crab apple tree in her garden which received no particular care, but gave a net return in 1910 of $25.80. If the real estate men who have acreage for sale in Lincoln county would emulate the methods of Oregon or British Columbia real estate men, there would be a photograph of this tree, together with a photograph of the loaded wagons that took the fruit to the station, all duly certified to as being just what could be done on this particular property which was being offered for sale. Great is the possibility of advertising!

Successful Market Gardener

Mr. F. Williams, proprietor of the Rideau Gardens, Ottawa, has a property of forty acres in the suburbs of the city all used as a market garden. He is a large asparagus grower, having ten acres devoted to this crop; he has also five acres in strawberries. His crop of cauliflower for the past year consisted of between forty and fifty thousand. He grows a large amount of celery between 125,000 to 150,000 bunches, the larger quantity being of the Golden self blanching variety, the remainder being winter celery. Last winter he stored almost his entire crop for winter sale, and made good profit. He has been known for forty years as a successful melon raiesr. He has one thousand sash that is used in the production of Montreal nutmeg melons and also raises a large quantity of field melons. The above crops along with early tomatoes and other varieties of vegetables tend to keep his time fully occupied during the growing season.

Mr. Williams also has a large greenhouse plant with storage and boiler pit in connection. There are two modern houses one hundred and seventy-six feet by thirty feet each. Also one of the same length forty feet wide, with sash roof. One of the best houses is devoted to the growth of potted plants. The other two being used exclusively for the growing of vegetables. Tomatoes are raised during the latter part of the summer and the crop is sold immediately following the finishing up of the outdoor crop. After the tomato crop is over the houses are devoted to lettuce for the remainder of the season. The total crop of lettuce amounts to one hundred and fifty thousand plants. Mr. Williams gives his method of lettuce culture as follows:

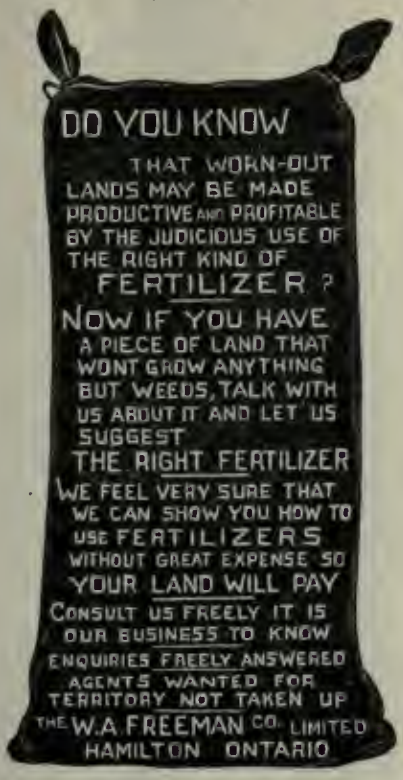
LETTUCE GROWING

I sow the seeds in flats or in the benches, and when the first true leaves appear prick them out and transplant into rows two and a half inches apart and one-half inch apart in rows. As soon as they grow sufficiently to make good sturdy plants, they are transplanted into the permanent beds six inches apart each way. I keep sowing seed every few days so that I shall have plenty of seedling plants, so that if anything should happen to one batch there would be others ready. It is a mistake many make not to have a sufficient number of plants. So to be on the safe side sow plenty of seed.

SOIL

The soil should be a light sandy loam of a coarse sharp nature, made as rich as possible. I depend almost entirely on stable manure. Sometimes if plants are not making sufficient growth I use a little nitrate of soda, and after the first crop

Fertilize Your Lands


DO YOU KNOW
THAT WORN-OUT LANDS MAY BE MADE PRODUCTIVE AND PROFITABLE BY THE JUDICIOUS USE OF THE RIGHT KIND OF FERTILIZER ?
NOW IF YOU HAVE A PIECE OF LAND THAT WONT GROW ANYTHING BUT WEEDS, TALK WITH US ABOUT IT AND LET US SUGGEST
THE RIGHT FERTILIZER
WE FEEL VERY SURE THAT WE CAN SHOW YOU HOW TO USE FERTILIZERS WITHOUT GREAT EXPENSE SO YOUR LAND WILL PAY
CONSULT US FREELY IT IS OUR BUSINESS TO KNOW
ENQUIRIES FREELY ANSWERED
AGENTS WANTED FOR TERRITORY NOT TAKEN UP
THE W.A. FREEMAN CO. LIMITED
HAMILTON ONTARIO

Happy Out Door Hours Are Spent in the

STRATFORD LAWN SWING

Fine for the youngsters and a source of enjoyment for the grown-ups too. Just the thing for your lawn or garden.

Inexpensive and certainly a pleasurable possession,—helps you to get the best of a summer's outdoor comfort

Made in three sizes at three prices. Built solid and strong in neat design and handsome finish.

If your dealer does not handle the "Stratford" write us for catalog F. It tells all about Summer Furniture.

The Stratford Mfg. Co., Limited
STRATFORD, CANADA

GOOD CROPS

ARE OBTAINED BY USING

THE BEST MANURE

AS SUPPLIED TO
NURSERIES, FRUIT GROWERS AND GARDENERS

SURE GROWTH COMPOST

makes poor land fertile, and keeps fertile land most productive. Supplied by

S. W. MARCHMENT

133 VICTORIA ST., TORONTO

Telephones : Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

Poultry Fencing that is Stronger than Seems Necessary

We make our poultry fencing close enough to turn small fowl—then we make it extra strong, so it will last for years and keep the cattle out. The heavy, hard steel top and bottom wires hold it taut and prevent it from sagging.

PEERLESS POULTRY FENCE SAVES EXPENSE

It is well galvanized so as to protect it from rust. It makes such a firm, upstanding fence that it requires less than half the posts needed for the ordinary poultry fence, and that means a big saving to you. Write for particulars.

We make farm and ornamental fences and gates of exceptional quality. Agents wanted where not now represented.

The Banwell Hoxie Wire Fence Co., Ltd.

Dept. O, Winnipeg, Man. Hamilton, Ont.

A fence of this kind only 16 to 23c. per running foot. Shipped in rolls. Anyone can put it on the posts without special tools. We were the originators of this fence. Have sold hundreds of miles for enclosing parks, lawns, gardens, cemeteries, churches, station grounds, etc., etc., Supplied in any lengths desired, and painted either white or green. Also, Farm Fences and Gates, Netting, Baskets, Mats, Fence Tools, etc., etc. Ask for our 1911 catalog, the most complete fence catalog ever published.

THE PAGE WIRE FENCE CO., LTD., Walkerville, Ont.

Branches—Toronto, Cor. King and Atlantic Ave. Montreal, 505-517 Notre Dame St. W. St. John, 37 Dock St.
The largest fence and gate manufacturers in Canada. 507

VANCO LEAD ARSENATE

Kills Codling Moth and Leaf-eating Insects every time.

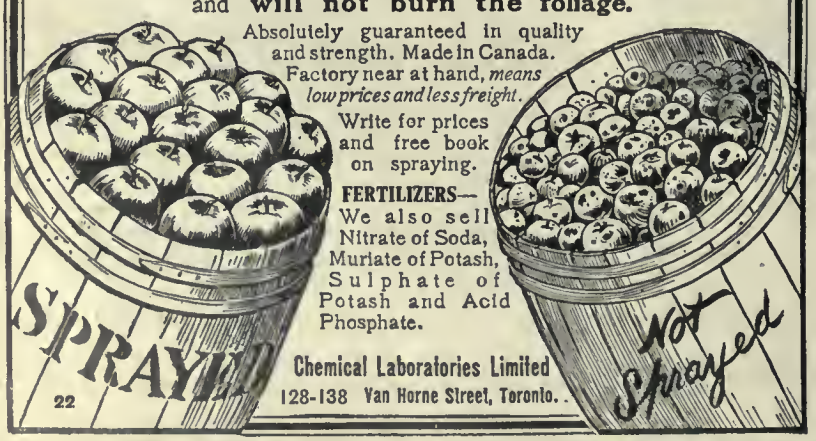
VANCO contains a guaranteed amount of Arsenic Oxide. Simply mix VANCO LEAD ARSENATE with water and you have a spray that is sure death to Codling Moths, Potato Bugs, Cabbage Worms, Asparagus Beetle and all other leaf-eating insects.

Easy to spray—will stand two or three rains without washing off—and **will not burn the foliage.**

Absolutely guaranteed in quality and strength. Made in Canada. Factory near at hand, *means low prices and less freight.*

Write for prices and free book on spraying.

FERTILIZERS—We also sell Nitrate of Soda, Muriate of Potash, Sulphate of Potash and Acid Phosphate.



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has been taken off if ground is not very rich I use a high grade commercial fertilizer, but if the land is in good condition it will carry the lettuce through without further fertilizing. It takes on the average about twelve weeks to make lettuce from the seed to the market head. The proper soil is most important. It should be of a sharp, open nature, and if not so naturally, should be made so by the addition of manure and coarse sand.

It is also necessary to have good bottom drainage, otherwise the constant watering will make the ground soggy. If not naturally well drained, tile or stone should be put in and the bottom of beds filled in with porous material as coarse gravel. The temperature should be kept at about forty-eight to fifty for night and sixty for day temperature. I prefer the Grand Rapids variety as the best for winter forcing.

Melon Crates

J. L. Hilborn, Leamington, Ont.

I have been growing from six to ten acres of musk melons annually for some twelve years, and have used many different sizes and styles of packages. I now prefer the slatted crate, 12 by 12 by 20 inches, for general use, I had 2,000 of these made up last winter, but on account of the hail storm of August 10th destroying most of our crop will not require half of them this season.

We formerly used a much larger crate, but experiments proved that express handlers broke many melons by rough handling. Since adopting this crate we are using now, we have much less complaint of broken melons.

We like this crate for any size of melon that we grow, but there is a growing tendency to use baskets for the smaller varieties of melons, using the ordinary 11 quart fruit basket for the smallest melons, also for the large ones and the 16 quart melon basket for the medium sized ones.

The best growers here are now turning their attention more and more to the growing of the smaller and better quality of melons. These are likely to be much more grown in the future than in the past. in this locality. The smaller ones sell well in baskets.—J. L. Hilborn, Leamington.

Dwarf Apples Found Wanting

Every few years the question of planting dwarf apples comes up. The advantages of their growth such as ease of picking, pruning and spraying, are worked for all they are worth, a few trees are planted, and that is usually the last that is heard of dwarf apple trees for some time. Dwarf apple trees occupy a very small place indeed in the production of commercial apples.

The Geneva Experiment Station six years ago established three dwarf apple orchards in different parts of the state. Prof. Hedrichs, the horticulturist, makes the statement that the dwarf orchard holds out no promise of being a feeder in commercial apple growing. Though, as he says, a few trees may be of use in the suburban home garden.

I received the fountain pen in good condition that you sent to me as a premium for securing two new subscriptions to THE CANADIAN HORTICULTURIST. I did not solicit the subscriptions merely to get the pen, but in order that others might be benefitted by the useful information that THE CANADIAN HORTICULTURIST gives. Every gardener should take your publication as it will help him out of many difficulties.—W. T. Pulley, Wentworth Co., Ont.

PROVINCIAL NOTES

Annapolis Valley West N. S.

R. J. Messenger, Bridgetown.

Everything points to a banner crop of apples in the Annapolis Valley. Though the trees grew late last fall the first part of the winter was so mild the season's growth was well ripened before the severe weather of February and March.

At this writing, May 15th, the buds are well opened and the pink of the blossoms of the early varieties beginning to show. There will certainly be a full bloom, and if the weather during pollination is favorable we should have a good set of fruit.

Nova Scotia orchardists are just beginning to wake up to the value of their position and opportunities. Trees are being set out in greater quantities than ever. The feeling that our province should lead the world in the production of prime apples is growing and we are not satisfied with a second place.

Lime-sulphur and arsenate of lead are the popular spray materials this year. Gasoline engines and power pumps are replacing the hand pumps. We hope to have a director appointed and real work begun on our recently purchased experiment station at Kentville this summer.

Eastern Annapolis Valley N. S.

Ennice Buchanan, A.R.H.S.

After a protracted spring, with the frost slowly coming out of the ground and snow lingering on the hills, the weather has turned warm, and in the second week of May the apple trees have suddenly leaped out. There is every prospect of a large crop of all kinds of fruit.

The spring work seems more rushed than usual, owing to the long winter. For this reason some orchardists were too busy to put on the first dormant spray, but the second application will go on about the third week in May. Lime-sulphur is all the rage, and power sprayers are becoming fashionable.

IF YOU HAVE A HEATING PROBLEM TO SOLVE, GET THIS BOOKLET

IT TELLS ABOUT THE SANE HEATING OF HOMES

"Comfort & Health" tells about a heating system.

¶ It goes into the question of healthful heating and shows how important a part the furnace plays in the health of your family.

¶ It explains the principle of warm air heating; how the furnace draws in fresh air, warms it and circulates it moist and pure to every room in the house.

¶ Then it tells about the perfect warm air furnace—the "Hecla." The furnace that cannot leak gas. The furnace that gives heat without dust. The furnace that is easy to run, and what is most important, how that furnace—The "Hecla"—saves you one ton of coal in seven.

"Hecla" Furnace

CANNOT LEAK GAS

Gas in the house is disagreeable. Often it proves dangerous to the health. The "Hecla" is so constructed that gas **cannot** get into the living rooms. The places where gas leaks occur in the ordinary furnace are fused in the "Hecla" so that gas cannot possibly find an outlet. These **fused joints** are made by welding the parts at a white heat and have proven absolutely gas and dust proof even after 20 years of service.

SAVES 1 TON IN 7

The "Hecla" uses only six tons of coal where others use seven. It is the steel ribbed fire pot that makes this saving. All fire pots have corrugations or cast iron flanges to increase the radiating surface of the fire pot, but on the "Hecla" these flanges are of steel plate placed close together and **welded** into the fire pot. Three times the ordinary radiating surface is thus obtained and by actual test a saving of 13⅓% in coal is effected.

INVESTIGATE THE "HECLA"

Get the Booklet "Comfort & Health." It is yours for the asking.

CLARE BROS. & CO., LIMITED, - - - PRESTON, Ont.

PLANS **Send a rough diagram of your house and we will send complete plans and estimates for heating it.** **FREE**

Send for 75th Anniversary Catalog FREE
MODERN GARDENING
Our No. 1 Wheel Hoe provides a way to plow, furrow, cultivate and weed your garden without taking valuable time from other work. With this tool a boy can take care of a big garden, providing fresh vegetables all summer. A wonderful time and labor saver for only $7.00. Other tools $2.50 up.
IRON AGE Farm and Garden Tools
Why try to get along the old way when you can buy these light, durable, handy tools? Write for Anniversary Catalog showing entire line, including potato machinery, etc.
BATEMAN M'F'G CO.
Box 5161
Grenloch, N.J.
75 YEARS IN BUSINESS
No. 1 Double or Single Wheel Hoe

"Stocks carried at many convenient points. Ask for address of nearest Canadian agency."

THE
STRATFORD EXTENSION LADDER

It is the safest and best on the market. Fitted with automatic hooks that lock at every rung and unlock between the rungs

It is
LIGHT, STRONG
EASILY OPERATED AND DURABLE

IF Interested write for Catalogue F

THE
Stratford Mfg. Co.
Limited
STRATFORD, CANADA

Makers of Ladders for ev ry conceivable purpose

Aphine
The Insecticide that kills plant Lice of every species

You can depend on it for positive results, without fear of failure or dissatisfaction.

It destroys green, black and white fly, red spider, thrip, mealy bug, brown and white scale without the slightest injury to the tenderest flower or foliage.

FUNGINE

An infallible remedy for mildew, rust and other fungous diseases. A clean, safe and easily applied spraying material, particularly adapted for the greenhouse. ——FOR SALE BY——

Dupuy & Ferguson
38 Jacques-Cartier Square, MONTREAL, Can.
Send for Descriptive Circular.
Manufactured by APHINE MANUFACTURING CO., Madison, N. J., U. S. A.

Root grafts, which have been stored in sawdust are now being planted in the field. The demand for fruit trees is larger than ever: the largest fruit grower in Berwick has planted seven thousand young trees, while nearly all the leading farmers are adding to their orchards.

Peas which were planted early in April rotted in the ground, but those planted after the last snowstorm in the third week of April are doing well. Many people lost their house plants, and several garden plants were winter killed.

Nitrate of Soda, dried blood, basic slag, bone meal, and other fertilizers are being applied. Vetches have been sown as cover crops.

Quebec

The Pomological Society of the Province of Quebec is planning to encourage the apple-growing industry by the establishment of experimental orchards. A committee of the society having charge of the scheme have completed arrangements by which four experimental orchards will be established in the province. The Department of Agriculture at Quebec will grant $800 to each of these on condition that a co-operative fruit growers' association is formed in the district, and the money is to be expended in pruning, fertilizing, and spraying operations in the orchards selected for the purpose.

At Ste. Hilaire and Abbotsford, organization has been effected through the efforts of Prof. S. B. Blair, of Macdonald College, and Mr. Reid of Chateauguay. Efforts are now being made to interest the farmers in the Covey Hill and St. Joseph du Lac districts to form similar associations. At each point Fameuse orchards of eighty trees will be selected and tests made with different fertilizers and spraying mixtures to determine their value. Two men will be appointed by the Pomological Society to superintend the work and report results. Owners of the orchards will be guaranteed against any loss on the trees under treatment and all gain in increased yield goes to them.

The society is encouraging the enforcement of the new provincial law, which forbids the spraying of fruit trees with arsenical mixtures when in bloom.

Montreal

E. H. Wartman, Dominion Fruit Inspector.

Still the big sales of fruit continue. On May 8th, eight cars of bananas arrived, representing 3,300 bunches, which would make if placed end to end touching, a string two miles long. The stalks if piled would equal several cords of wood.

On May 11 three cars of North Caronna strawberries arrived. The best quality sold by auction for 20c. a box by the crate. This day's sale of this class of fruit alone amounted to over $3,000. Even of this amount of berries, however, how few people got a taste! To supply each family in a city like Montreal with a box of berries would take 28 car loads.

The crate the North Carolinians ship their berries in is a very complete one; four layers of eight boxes each making a convenient parcel to handle. These when shipped in good order, carry well to our market after several days in transit. I consider our wholesale fruit men who tackle full cars of these perishable berries are heroes in the trade—as these berries are bought for cash at the station, and it is not an uncommon thing for a car to be a day late, which sometimes means a $300 loss.

Some buyers have said many crates of

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berries have been dishonestly crated. I candidly say that I have found many crates in which the bottom berries were far superior to those on the top. The man who buys these crates cheap finds no fault, but when he gets a crate a little misrepresented on top so he cannot make a five cent per box profit, he makes a terrible howl.

It is not easy for a man to get rich raising strawberries at six cents a box, after paying for cultivation, picking, and other expenses. The man, however, who just turns the boxes over for five cents a box profit, seems hurt if he has to sell a few boxes at cost once in a while. Again, the man who buys berries at a reasonable price and expects a big profit by holding them for high prices to get this big profit checks sales, and berries spoil. Who then is to blame but himself, and not the man who sells them.

Niagara District Notes

The bloom throughout the Niagara District, especially on apple trees in most districts and peach trees, has been most encouraging. There is more enthusiasm among the fruit growers of this district than ever before. New moves of one kind and another intended to advance the interests of the section are being made in all directions. The future of this great fruit district becomes brighter every day.

Arrangements for the erection of a $50,000 cooling plant at Winona are being made by Mr. L. A. Roy, of Chicago. A cooling system will be used by which fruits and perishable goods can be cooled quickly and much more satisfactorily than by the old system. Several meetings of the local growers have been held. It is claimed that car cooling saves handling fruit, and that as much can be cooled in four or five hours by this method as in two or three days by the storage system. Mr. Roy states that strawberries have been sent from the Pacific to the Atlantic in perfect condition, and that seventy thousand carloads of fruit and vegetables are sent out of the south every year now, under this system. A whole train of cars may be run under a shed and the cooling process accomplished in half the time required by the icing method. The cost is placed at $25.00 per car. The Southern Pacific Railway Co. is said to have over a million and a half dollars invested in these plants.

There was a considerable drought throughout this district for several weeks. Some of the growers were becoming alarmed, but recent showers have altered conditions greatly.

In the Jordan District new orchards and berry patches are being set out in large numbers. Land that only recently was uncultivated has been transformed . It is estimated that many hundreds of acres have been brought into cultivation. Large farms are being broken up into smaller ones and the value of the land is steadily increasing.

British Columbia

Three years ago it was said that the C.P.R. was preparing to handle an annual output of 1,200 cars of fruit from the Okanagan valley by 1911. When the statement was made it was received with scoffing by some, doubt by many, hesitancy even by those most enthusiastic over the capabilities of the favored district.

In the light of developments in 1910, the strong probability is that the Canadian Pacific will have to provide transportaton for more than 1,200 cars of fruit from the Okanagan valley in 1911.

From Vernon and Okanagan Lake points the grand total of fruit for the 1910 crops

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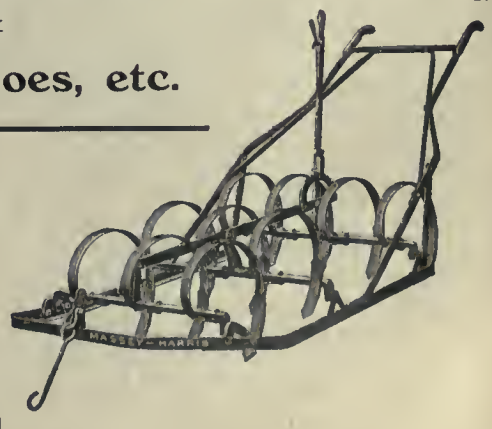

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was approximately 536 cars. Of this total, it is estimated that there were 10 cars of small fruits, principally cherries, with a few strawberries and raspberries. Plums and prunes approximated 44 cars, apricots 7 cars, crab apples 36 cars, pears 18 cars.

PEACHES 77 CARS

The peach crop returned a total of 77 cars approximately. This total includes as well as the actual exports from the valley, the surprising quantity of 110 tons put up by three canneries, Kelowna, Peachland, and Summerland.

To the Big Red Apple of the Okanagan, however, must be given place of honor, for the total export production is closely estimated by the experts engaged directly in the supervision and handling of the shipments, at 344 cars, much the largest return on record, and due in large degree to much of the acreage of young plantations now first beginning to yield an appreciable quantity.

VEGETABLES

There is to be added to the export business from the Okanagan Valley the very large total of 386 cars of vegetables and other produce (excluding hay) for the 1910 season.

The grand total, estimated for the Okanagan Lake points and Vernon is approximately 925 to 930 car loads, or very close to 1,000 cars. Considering these totals, it is readily seen that the estimate of 1,200 car loads for 1911 may very easily be reached and passed.

Prompt Market Reports

The British Columbia provincial government is taking steps for a most comprehensive system of market reporting for the benefit of the fruit growers this season. Last summer, L. A. Metcalfe, the government's market commissioner, was alone in the field, and his reports to Victoria were distributed throughout the fruit districts by mail. This season the government has promised to have agencies in the principal distributing markets of the prairie and from the telegraphic reports sent to Victoria bulletins will be wired out of the affiliated fruit associations.

This will cut at least five days from the time required to get market information to originating points for fruit and will, in fact, keep the associations posted within twenty-four hours of the actual market. In addition, one agent will be maintained in the competitive valleys just across the United States border to advise on market conditions there, for with reciprocity looming up, it is considered to be important to keep in close touch with United States conditions, methods and organizations.

The fruit growers of Durham county held a meeting at Newcastle, Ont., on May 15th, and formed The Durham Co-operative Fruit Growers' Association. The following officers were elected: President, G. H. Martyn; Vice-President, Dr. H. C. Leslie; Secretary-Treasurer and Manager, W. J. Oke; Directors, A. G. Mayhee, J. A. Rae, B. F. Peters, R. A. Westington, A. J. Runnalls, W. H. Symons, M. G. Welch, M. Osborne, W. A. Meadows. It was decided to admit no members who would not take good care of their orchards by pruning and spraying and who would not agree to pack apples of the highest quality, above rather than below the required standard. Mr. P. J. Carey, Dominion Fruit Inspector, and R. S. Duncan, of the Ontario Department of Agriculture, assisted in the work of organization.

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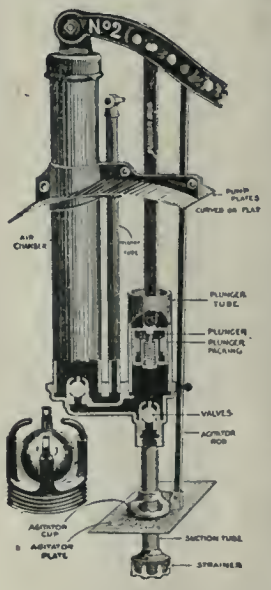

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The Canadian Horticulturist

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Suggestions for the Ontario Horticultural Exhibition

T. G. Bunting, B. S. A., C. E. F., Ottawa, Ont.

THE Ontario Horticultural Exhibition, which is held in Toronto every fall, is probably without exception the finest of its kind in America. The Spokane Apple Show may rival it in extent and magnitude of the display of apples, because it devotes itself to the display of the apple alone; but for quality and variety of exhibits the Toronto Show stands alone. The Horticultural Exhibition has grown and increased in attractiveness from year to year until last year there was a finer and better display than ever. Still there is room for the innovation of special features which would add greatly to the interest taken in the exhibition.

In October, 1909 at the First New England Apple Show, held at Boston, there were two features that were attractive and educational. There was in operation a small yet complete cider mill, and the product of the apple in this form was sold to the visitors. This not only provided an attractive exhibit but also a source of revenue. Next to the Horticultural Hall there was a first class restaurant, which most of the fruit growers in attendance chose to make their dining headquarters. The management of the restaurant made a specialty of the apple as an article of diet during the week of the exhibition. Their pies were not the kind usully served in the hotels and restaurants, and, I believe, in too many of the homes of the apple growers themselves. Instead, they were the kind "mother used to make"—the big, deep, juicy and luscious kind that always meant a second helping if father wasn't there. To lend variety to the apple you could secure a most beautifully baked apple, probably one of the most delicious forms in which an apple can be served, yet how seldom do our appetites make the acquaintance of any kind of a baked apple to say nothing of a properly baked one.

Even these two forms did not nearly begin to exhaust the cook's modes of preparing the apple, for we had served to us apple sauce, prepared and served in different ways, apple butter, and jellies. The very best of high colored apples, such as McIntosh, Wealthy and Spy, were always on the table. Pure, fresh apple cider was usually served instead of milk, tea or coffee, because as a beverage it offered a very desirable change. Twelve or fifteen forms of the apple were always on the menu card.

To me it seems that this should become a very strong feature of the Toronto Exhibition, because the apple holds a pre-eminent place among the fruits, flowers and vegetables. A large booth properly decorated and with appropriate placards displayed, and in the hands of competent persons, whose business it would be to prepare and serve in all its different forms and uses the "King of Fruits," would add a great interest and enthusiasm to the exhibition, and in itself would be an education to the thousands of people who pass through the arena and admire the beautiful yet "forbidden fruit." It is always impossible to obtain for eating purposes, even with money, anything that looks like an apple within the arena or within several blocks of it.

IT IS THE BEST

The Canadian Horticulturist is the best publication for the money I ever saw, and I have subscribed for and read all the prominent agricultural and horticultural publications in Canada and the United States for the past forty years. It is certainly an ideal horticultural paper.—K. J. Mackenzie, Picton, N. S.

"RAISIN DAY"

Some months ago I received through the mail an invitation to attend "Raisin Day" at Fresno, California. Accompanying the invitation was a little pamphlet, neatly gotten up, giving facts concerning the raisin, its growth, marketing, food value and also nearly a hundred different recipes for preparing the raisin for the table. These little pamphlets, which were sent broadcast over the country, must have had an influence on some, at least, of their readers in causing them to take an added interest in the raisin as an article of diet, and it is needless to presume that the pamphlet fulfilled its mission by tending to increase the consumption of raisins.

Why should not the Ontario Fruit Growers' Association, in connection with the exhibition, prepare a pamphlet setting forth the advantages that the apple has as a breakfast food over the orange, grape fruit, and other fruits, and, in fact, its advantages as a food to be served on the table three times a day. The public in general do not know the difference between most of the standard varieties of apples. Information in regard to the eating, baking, cooking and keeping qualities could be given in such a manner that it would be appreciated by those into whose hands the pamphlet fell.

All the known recipes for making pies, apple sauce, baking apples, apple butter, and jellies should be given. In fact, such a pamphlet or booklet should give all the information that would help to stimulate and increase the consumption of the apple, and in particular the Canadian apples. It should be distributed freely from the exhibition hall and from the booth where, during the day and evening, visitors could obtain the apple in all its forms from the fresh fruit to cider and jellies.

After such a practical and appetizing demonstration of this nature the Toronto housewife or her daughter might be expected on going home to call up the fruit store and cancel her order for oranges and bananas and order instead a dozen each of McIntosh Reds and R. I. Greening apples, the former for eating fresh and the latter for baking. What would be the effect if a thousand homes in Toronto switched over from oranges and bananas, which are used so plentifully, to Canadian apples and pears?

Another feature that could properly be added is one that was taken up last fall at the First Canadian Apple Show for the finest and most attractive display of apples in the store windows during the week of the exhibition. In Toronto during the exhibition we see lots of attractive fruit store windows, with fine fruit displayed, but sad to say, nearly always it is foreign fruit. For every box of foreign fruits consumed in our markets there is that much less of our own consumed.

It is not higher duties on foreign fruit that we want; but our own fruit to meet competition fairly on our home markets. In order that it may meet it successfully we must put it up just as attractively or

a little more so, and then advertise it extensively. It is well known that the quality of our fruits, and the apple in particular, cannot be excelled anywhere. What need we fear then from competition if we meet that competition not by higher duties, but by the finest quality fruit, properly put up and displayed and advertised?

We should be more enthusiastic over our own fruits and take a greater pride in them than we do. If we did there would not be such a big demand throughout the entire year for California fruits. Canadian fruits of the same standard or grade are in every case, with the exception of the grape, superior to the California fruits of the same kind.

Black Rot Fungus

Prof. W. S. Blair, Macdonald College, Que.

This disease appears on the leaves in the form of brownish spots, appearing somewhat like the burning from using too strong a mixture of paris green. The black rot fungus, Sphaeropsis malorum, attacks the fruit usually when nearly mature. Apples attacked decay quickly, becoming brown at first with blackish discolorations under the skin, and as the disease progresses, the whole fruit becomes blackened. The apple remains firm at first, but gradually dries out and becomes wrinkled and shrunken. Under the skin of such apples small black dots or pustules may be seen, which are the spore-producing bodies of the fungus, and from these the spores escape. The fungus may gain an entrance through cracks or wounds, and generally attacks the larger branches or trunk, producing canker spots in the bark. Spore-producing bodies may form also in these diseased areas.

All diseased fruit should be destroyed, and Bordeaux mixture as applied for apple scab fungus will do good in controlling the black rot. The diseased spots should be carefully cut around to good healthy bark and washed out with a copper sulphate solution, using one pound to five or ten gallons of water. After this has dried, cover the wound with a thick white lead paint. I do not think the corrosive sublimate is advisable. Copper sulphate solution as above can be applied to the bark at any time, but it will of course injure the foliage. Double strength Bordeaux will not injure the bark.—W. S. Blair.

Common Foes

Tent and forest caterpillars have been very numerous this year in parts of Ontario and have caused much damage. They are two different species of hairy caterpillars, and are found on fruit and shade trees. If a grower is spraying his fruit trees faithfully with arsenate of lead in any shape, this of itself will prevent injury from tent caterpillars, since any internal poison is fatal to them.

The tents may be crushed with the gloved hand, when they can be reached at a time when the caterpillars are inside; or they can be burned by a torch on the end of a pole; or they can be twisted out of their reach by means of a wire brush made for the purpose attached to the end of a long pole. These remedies are effectual only when the caterpillars are in their tents, early in the morning, or in stormy, wet weather. Even on trees which are not ordinarily sprayed, a single spraying of arsenate of lead, when caterpillars are observed, would probably stop their depredations.

When full grown, these caterpillars spin cocoons, whitish or yellowish in color, from which emerge brownish moths that lay their eggs in a ring around the small twigs of fruit and shade trees. These eggs go through the winter, and frequently in pruning a farmer or orchardist will observe them, and can prune off the twig holding the eggs, and destroy the same.

CUTWORMS

Cutworms have been very injurious this year. Poisoned bait, made of bran mash, sweetened with cheap sugar, or molasses, and made decidedly green with a liberal application of Paris green, is a very good remedy in a garden. A tablespoonful of this should be put at frequent intervals among the plants subject to attack, not, however, nearer than twelve inches to the plant; for, in case of rain, the Paris green might be washed against the roots, and would injure or kill the plant. Thorough cultivation is an aid.

Pieces of shingle or board, placed at intervals over the garden, serve as traps under which the cutworms hide toward morning, and where they can be found and killed. Frequently the depredator will be found within an inch or so of the plant cut, buried an inch under the soil.

THE GREEN CABBAGE-WORM

Give children a few cents to make nets of mosquito bar and catch the white butterflies flitting over your cabbage and cauliflower fields, since the female butterflies deposit the eggs from which the cabbage-worm comes. Children might well be paid, also, for picking off the green worms before they have done much injury.

Spraying with Paris green is quite commonly practised, and cabbage will stand a strong application. A spray as strong as five pounds of Paris green in a fifty-gallon barrel of water has been used with success. Cabbage may be sprayed up to within a week or so of being gathered, when necessary, without any damage whatever, or any danger.

To carry on co-operation successfully, it is absolutely necessary that you have good officers, men who are willing to devote themselves to the interests of the company. To my mind co-operation is the only solution of the fruit growing problem.—A. E. Dewar, Charlottetown, P. E. I.

A Peach Orchard in Lambton County, Ont., where it was thought Peaches could not be Grown.

The peach orchard here shown is that of Johnson Bros., Frest, Lambton Co., Ont. The trees shown are three years old. Year by year it is being discovered that the tender fruit districts of Ontario are much more extensive than was formerly supposed. Mr. D. Johnson may be seen in the foreground. An experiment will be tried this year of marketing the peaches from this orchard direct to the consumer.

The New Cherry—The Early Rivers

Linus Woolverton, Grimsby, Ont.

Among the many novelties furnished me for testing while I was doing experimental work in fruits for the Ontario Department of Agriculture, there was one new variety of cherry, recently originated by Thomas Rivers, the celebrated nurseryman of Sawbridgeworth, in Hertfordshire, England. I had almost forgotten the high value set upon this cherry by Mr. Rivers, until one day this month (June 15th) when walking through the cherry plot, I was attracted by three trees of remarkably fine looking fruit. On looking up my records I found that they were the Early Rivers, planted in 1904. As I sampled them I thought to myself, "No wonder Mr. Rivers gave the cherry his own name; he may well be proud of it."

Here is a cherry beginning to ripen about the middle of June out of doors in Canada, fit for use along with our Early Purple, and superior to it, and continuing in season for a month, according to Mr. Rivers. At first it is a rich dark red in color, but it becomes darker and darker the longer it hangs on the tree.

Of course, my remarks on the value of this cherry for Ontario must be taken "cum grano salis," until it has been longer under test; but from its showing this season, I should expect it to become a very valuable commercial sort for us. It appears to be resistant to monilia rot, it is plump and roundish, heart-shaped in form, the stems are long, an inch and a half, and hang in clusters, making them easy to gather, and the pits are very small .

The largest samples I have grown this year measure scarcely one inch across, but have not yet swelled to their fullest size. I may report further about it later, for the cherry may develop faults that do not yet appear. It should be tested on a larger scale than I have done before we can advise our growers to buy it, especially at the extravagant price asked for it. In 1904, I think the price was a guinea.

Summer Pruning

Among horticulturists the summer pruning of fruit trees has become a common practice. If it is done judiciously the plants are sure to be benefited.

The well managed fruit garden requires very little trimming at any season of the year, and the work can probably be more advantageously done now than during the early spring. Neglected trees often require the removal of very large limbs, and the thinning out of numerous interlocking branches. Such extensive pruning in summer would be a disadvantage to the trees. Peach and plum trees have a habit of making a rank growth, and if this is not checked, the plants tend toward wood rather than fruit. Cutting back the leading shoots immediately has a tendency to throw young trees into earlier bearing.

The black knot appears on plum trees at this season, and should be cut out in its earlier stages. At first it appears as a swelling of the branch. Later it bursts through the bark, and shows a greenish color, which next turns to brown, and then black. Remove and burn all suspicious looking branches.

Apple and pear trees should have all interfering branches cut away, and all diseased or dead wood removed. Do not, however, cut off large limbs from these trees at this time. Dwarf fruit trees should have some of the more rapid growing shoots pinched back to make them acquire the desired form, and to keep them within bounds. Trained fruit trees need constant attention to prevent the side shoots and fruit spurs from developing wood. Allow the leading shoots to grow. The plants are sustained principally through these branches.

Grape vines growing in rich soil often run to vine and leaves, and if they are not summer pruned the fruit is of an inferior quality and quantity. Check the wood growth by cutting back the leading shoots and remove some of the rank foliage that prevents the sunlight from gaining admittance to the fruit. All summer pruning should be done now if it has not been accomplished before.

Gathering Elberta Peaches in the Orchard of J. W. Smith & Sons Winona, Ont.

The trees in this orchard averaged ten baskets of peaches each. The ground is a deep, black earth. The trees have never failed to give a crop since they were planted four years ago. Mr. Smith likes the type of ladder here shown they being strong, light and durable. They are three legged and can be stood on any kind of a hill without toppling over.

Peach Growing and Diseases of the Peach

A. G. Pettit, Grimsby, Ont.

After procuring the best soil possible, the three most essential things for growing peach trees are manure, cultivation and pruning. The best soil is deep, sandy loam. I have never seen a success in growing peach trees on a shallow soil, or on land that has water close to the surface. You can underdrain such land, and grow good crops of grain, but to grow peach trees on the same land, about the fourth year, the fibres from the roots will completely fill up the tiles. Then look out for dead trees. I have had as many as ten or twelve trees killed adjoining an underdrain. I have taken out the trees, and used the land for other crops.

PREPARATION OF THE SOIL

In the preparation of the soil for planting, do as you would in preparing land for a crop of corn. After it is marked, my method is, use a board with a hole in each end and a notch twelve inches from the centre. This does away with sighting.

For preparing trees for planting, cut off broken roots, shorten long ones, and I prefer to trim trees after planting. I also, prefer to have the stocks of trees from two and a half to three feet long. Some make objection to this and say that one foot to one and one-half feet is the correct thing. We shall leave this for growers to decide. If the branches come out close together at the right

distance from the ground, cut them back. If not, trim to a whip. Avoid crotches when possible . In trimming the year after planting, cut out wood that is growing perpendicular from the centre of the tree and thin the tree thoroughly. Cut back one-third of the new growth on the side, and one-half on the top. As the trees grow older, cut less.

Tree Before Pruning, No. 1.

The tree here shown is in the orchard of Mr. H. W. Bumstead, Meaford, Ont., and shows how it looked before pruning for a demonstration meeting held in the orchard under the direction of J. F. Metcalf, the district representative of the Ontario Department of Agriculture, at Collingwood.

Be sure to keep the centre open and the tops shortened every year.

Cultivate as one would for a good crop of corn, well and often.

Fertilizing is very necessary. In the past, I have been using ashes and stable manure, light dressings and often, rather than heavy, which stimulates to rapid growth. I have used crimson clover and hairy vetch for cover crops. Crimson clover is rather uncertain, as it winter kills too frequently.

DISEASES

Yellows, no cure; dig out and burn as soon as possible.

Little Peaches, the same treatment.

Curled Leaf, sulphur and lime.

Our fruit inspectors have marked a great many trees for Yellows. I claim that not one in ten that they have marked has the Yellows. The fruit on the trees with Yellows will color from ten days to two weeks before they should if they are not diseased.

This other disease, if it is a disease, is ten days to two weeks later than the same variety on healthy trees. I have been called to some orchards to examine the trees and found them yellow. Peaches, small, well colored, sweet, and firm, without spots. Water sprouts have not the appearance of Yellows.

One of my neighbors has taken out trees that would have yielded 5,000 baskets of fruit. He tells me one-fourth of them had the Yellows, the remainder what I call the new disease.

How to Grow Grapes

Wm. Warnock, Goderich

. I approve of the horizontal system of pruning vines, that is to plant ten feet apart in the row and cultivate until it produces two strong canes which ought to be made the second year from planting. These are to be cut off at pruning time five feet from stump, which should be low enough so that the canes will tie easily on wires ten inches from the ground. At this height it is very easy to let them down to the ground every fall for winter covering, and as the fruit is always near the ground it has the benefit of more heat than if it were higher, which is of great advantage in ripening grapes. I use four wires for trellis, fastened on posts put half way between plants, and the spaces between wires commencing at the bottom are twelve to fourteen and sixteen inches. The first year the vines are tied to wires a cane grows up from each joint. Each one of these canes will bear three or more bunches of grapes. I prune off all but two, leaving the best or two lowest and pinch off the top of cane three leaves above the upper bunch; also keep all laterals pinched off.

CULTIVATION

We must give particular attention to cultivation and the keeping up of the fertility of the soil. If the vines are making a satisfactory growth of wood they need only a light dressing of good wood ashes every fall. For instance, my land is very gravelly and porous and I give a good coat of stable manure every three years, and the other years I apply a light dressing of ashes—about four shovelsful to the vine, evenly scattered over the whole surface between vines. I also use dissolved bone with my ashes every third year, and cultivate thoroughly up to the 15th of August, when I stop so as to allow the new wood to ripen better, and by these methods of pruning, fertilizing, and cultivating I grow as fine grapes as are produced anywhere in the Northern States or Canada.

A little girl was greatly interested watching the men in her grandfather's orchard putting bands around the fruit trees, and asked a great many questions. Some weeks later, when in the city with her mother, she noticed a gentleman with a mourning band around his left sleeve. "Mamma," she asked, "what's to keep them from crawling up his other arm?"

Oats are our preference as a cover crop, as they die down in the winter and are easily cut up with a disk harrow in the spring.—J. W. Smith & Sons, Winona.

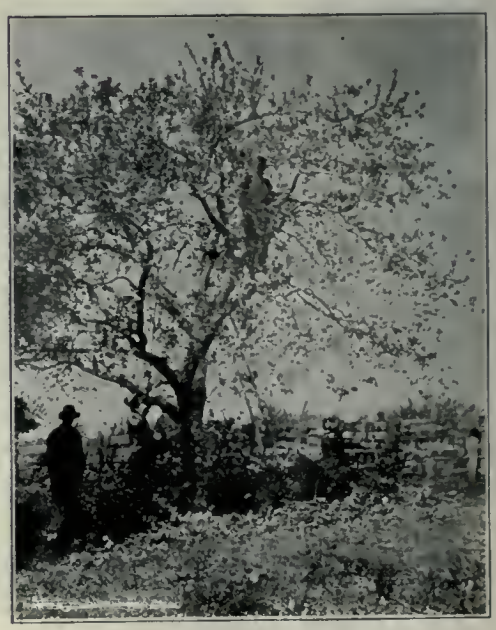
Ferlilizing Fruit Trees

Very little attention has been paid as yet in the majority of fruit districts to the fertilization of fruit trees. Too many growers are satisfied to take a crop year after year without returning to the land, except perhaps a small amount of stable manure every three or four years.

With the present system of plowing leguminous cover crops we are wasting valuable nitrogen when we apply manure to an orchard. Though, if no clover or vetch cover crop has been grown for years it is well to give a good application of stable manure at first.

What is known as a 10-8 fertilizer is largely used in New York State. This means a mixture containing ten per cent. of phosphoric acid and eight per cent. of potash, but this brand is rather lacking in potash. Many good growers are using equal parts of acid phosphate, bone meal and muriate of potash. In Nova Scotia their regular yearly application is three hundred pounds of bone meal and two hundred pounds of muriate of potash. Liberal feeding not only increases the vigor of the tree, but increases the yield and lessens the tendency for the orchard to have off years in bearing. In addition, the potash in the fertilizer improves the quality of the fruit and deepens the color. Spraying, cultivation, fertilization, is the secret of successful fruit growing.

The fruit that is grown in the interior of the tree is not so liable to blow off as if it were allowed to grow on long branches, and the tree is more easily sprayed and the fruit more easily picked.—J. O. Duke, Ruthven, Ont.



Tree After Pruning No. 2.

The same tree after it had been pruned. Demonstration work of this nature is of great value to the farmers in the districts in which the demonstrations are given.

House and Window Plants in Summer

Wm. Hunt, O. A. C., Guelph, Ont.

House plants should have a season of partial rest during the hot days of summer. This can be given them by standing them out of doors in a partially shaded position where they get very little sun. Two or three hours' sun in the early morning or late evening is beneficial to them, but there are very few pot plants that are benefited by being exposed to the hot sun of mid-day in summer.

The north side of a fence or building is a good place for house and window plants during hot weather. The plants should not be stood on ordinary soil or even on gravel. The best plan is to stand them on coal ashes spread an inch or two in depth so as to form a bed of ashes. This will prevent earth worms from getting into the pots, as worms will not work up through the covering of ashes. A sprinkling of air slaked lime on top of the soil where the plants are to stand will also keep away earth worms. Standing each pot on a piece of slate or flat stone will answer the purpose if coal ashes or lime cannot be had.

EARTH WORMS

Earth worms are very injurious to pot plants. They are often the cause of the drainage choking up, causing the soil to become sour and waterlogged, a condition that will soon kill the plants if not remedied by re-potting and giving the plants fresh drainage.

Earth worms are sure to congregate where the soil is kept moist, as it would be by watering the plants every day or two. A good remedy for earth worms in flower pots is to slake about half a pound of fresh lime with about a quart of warm water, then add cold water sufficient to make a gallon. Allow the solution to settle and clear. Enough of the solution can be given each plant to just moisten all the soil. This will drive out the worms, when they can be easily destroyed. The only plants, usually grown by amateurs, that are injured by the application of the lime solution are azaleas and rhododendrons. The lime solution should not be applied to these plants.

POT PLANTS

Plunging the pots in a bed of coal ashes several inches in depth is a good plan to adopt with pot plants in summer. The pots should be plunged or sunk into the ashes at least two-thirds of the depth of the pot, or even deep enough so that only about an inch of the top of the pot is above the surface of the ashes. By plunging them in this way they require far less attention in watering, as the water does not evaporate as quickly as when the plants are stood on the surface of the ashes. The latter is an important point, especially as the owners of the plants are sometimes away from home for weeks during the summer months.

A collection of plants plunged in ashes or even in soil with some ashes placed at the bottom of each pot will require very little attention. They will almost take care of themselves in summer if placed in a partially shaded place. There are very few house or window plants that would not be benefited by this method of treatment during the hot months of summer. Such plants as palms, aspidistras, ficus elastica, begonias, calla lilies, hydrangeas, fuchsias, and pelargoniums, and summer plants are much better put outside in the way mentioned during the hot months of summer than kept in the house. An occasional spraying with clean water in addition to the rains will benefit the plants and keep down insects.

Another plan that can be adopted with a small collection of plants is to stand the pots in a window box and pack them around with moss, or even sawdust or excelsior packing material. If the two last-named materials are used, a layer of moss should be placed on top so as to produce a more natural appearance. If a box of plants treated in this way is placed outside in a north window, or where it is shaded from the hot sun, it will not only be useful as a decoration, but the plants will be materially benefited by treating them in this way.

A Profusion of Asters in the Garden of Mr. Wm. Robinson, Barrie, Ont.

Summer Care of Last Winter's Plants

Mrs. Annie L. Jack, Chateauguay Basin, Que.

WHEN the windows must be shaded from the fierce sunlight, and the rooms darkened for comfort, the plants that have been such a source of pleasure through the winter months become rather a white elephant on our hands. It is quite likely, too, that in spite of care the mealy bug and aphis have found a home on some of them, and lack of sufficient water has affected their growth.

If we are so fortunate as to have a garden we go out with a pan of coal ashes ,and make holes in which to plunge some of the pots to rest, putting the ashes at the bottom to prevent worms from crawling into the draining hole. Here can rest the Chinese primroses, the spent azalea, the poinsettia, and any other plant that has had its season of blossoming, and requires to recuperate and grow fresh buds for another winter. But they must not be forsaken altogether. Sufficient water should be supplied to keep them in health.

A heliotrope that has been in flower should be cut back and given two months' rest in a shaded place. The same method will answer for the pelargonium. There is no window plant that has so many varieties of treatment as the calla in summer. One authority will advise to turn the pots on their side out of doors through the hot months, paying no attention to them, lifting up in September, and giving warm water. This plan has proved successful with some amateurs. Another authority lets the leaves die down by simply withholding water, and repots the next month. All

agree that the calla, being at home in marshes, requires plenty of water, but the fact is, the plant has wonderful powers of endurance to survive these various treatments. It should have rich soil and a midsummer rest.

BEGONIAS AND PALMS

The flowering begonias and palms always seem to me suitable plants to remain on the verandah where they can have some shade, and yet plenty of air. Palms are a special care unless one is willing to devote a little time every morning to giving the leaves a sponging off on both sides. If this is done there will not be a chance for the tiresome scale to find lodgment, but stems and ribs must be washed as well as leaves. The aspidistra requires the same treatment, and so does the ficus (rubber plant): nor do the above-mentioned require frequent repotting.

The abutilon will do well on the verandah if attended to in like manner, but if there is an aphis, scale or mealy bug anywhere, it will find its way to these charming bells. A spray, from a fine nozzle, of warm water over the foliage in the evening will keep the plants in good condition and discourage depredating insects.

What to do with the geraniums is often a query, for we cannot ignore them after their cheerful winter blooming; and they have the merit of not requiring extra care because of insects, and being very accommodating to the amateur. Let the old plants grow tall and blossom through the autumn to brighten the days beside the kitchen door, while cuttings can be taken off to make young plants for winter blooming.

The Holland bulbs that bloomed in pots can be turned out into the border, and get a summer's growth and winter rest ready for giving flowers in the garden another spring.

ORANGES AND LEMONS

There is a great deal of pleasure in growing the little orange and lemon trees that are willing to blossom in early spring in a sunny window, but it is rather provoking to have the lemons drop off half grown. This may perhaps be avoided by setting them out on the verandah after giving them a top dressing of fresh earth and regular watering. After fruiting it can be plunged beside the azalea until September.

A good plant for a permanent place on the verandah is Cyperus alternifolius, the very graceful and charming "umbrella plant." A pot of asparagus sprengeri, if lifted down every evening and set in a pail of water for a while, will continue to grow, and so will plumosus nanus, the feathery foliage keeping fresh a long time if given this immersion.

In fact, it is the life of plants when they are kept in this very unnatural position through the hot months to give the foliage regular sprinklings, and to apply liquid manure occasionally to such as are growing. It is a pathetic sight to see a batch of ill-cared for, thirsty, and dusty plants, and the attention that is necessary, if given, brings its own reward.

An Amateur's Famous Half Acre Garden

THE half acre garden of Mr. R. B. Whyte, of Ottawa, and the methods of its owner, afford interesting and valuable object lessons for those who have a desire to learn things horticultural. It is one of the most noted gardens on the continent. In a description he gave of it recently, from which most of the following is taken, Mr. Wilhelm Miller, the editor of Country Life in America, stated that during the fifteen years in which he had been hunting good gardens he had never seen one that had as many points of interest.

In his garden, Mr. Whyte grows six hundred kinds of flowers, including one hundred and fifty varieties of peonies, ninety of late tulips, seventy-five of narcissus, sixty of sweet peas, fifty of phlox and forty of lilies. There are one thousand gladiolus plants in it, and one thousand Shirley poppies can be cut daily for two weeks.

Mr. Whyte does not maintain his garden primarily for cutting. Nevertheless, no visitor ever goes away empty-handed, and the family supply two churches every Sunday with flowers. But they take care not to spoil the garden effects by cutting too much in one place. On

An Effective Border of Bedding Plants in Mr. Whyte's Famous Garden.

In the front of this border are daisies, Bellis perennis, and Mimulus tigrinus, next geraniums and cannas in the centre. The border is in bloom from early June until frost.

A Profusion of Bloom, Another Lovely Effect in Mr. Whyte's Garden

German Iris are favorites with Mr. Whyte. Some of these as they grow in his garden are here shown with Crimson Paeonies in the foreground.

one occasion, however, some neighbors picked for a wedding 4,200 sweet peas in one day.

OTHER PRODUCTS

The garden has supplied a family of nine the year round with all the fruit desired, including thirty-five varieties of English gooseberries, twenty-five varieties of grapes, and two hundred and ninety-nine quarts of preserves. It produces a fair quantity of fresh vegetables in season. The garden is so productive that three wagon loads of plants are given away each year to start new gardens. The soil is so mellow that the gardener never touches his foot to the spading fork, but simply sets it in and turns the earth over.

FLORAL FEATURES

A good idea of the main floral features of the garden may be obtained from the following table:

MONTH	CHIEF FLOWERS AND NUMBER OF VARIETIES
April	Snowdrops, crocuses, scilla.
May	Tulips (100). Narcissus (70).
June	Peonies (150). Roses (20). German iris (20).
July	Sweet pea (60). Jap. iris (30). Oriental poppies (20). Other poppies (12). Spirea (15).
August and *September*	Gladioli (5,000 plants). Dahlias (40). Phlox (50 to 70). Asters (12). Cannas (15 to 20).

Mr. Whyte cares more for variety than for show ,and values continuity of garden effect more than cut flowers. He wants plenty of flowers every day for five months, and, therefore, has given a great deal of thought to continuity of bloom. To fill the gaps in the foregoing plan he uses about forty kinds of lilies and one hundred perennials with scattering periods of bloom, including twenty kinds of yellow and orange day lilies. In other words, he uses permanent material wherever possible.

The only annuals Mr. Whyte uses largely for garden effect are sweet peas and Shirley poppies. The only tender plants he uses largely are dahlias and cannas. For April effect he has to depend chiefly on small bulbs. To keep his bulb beds from looking shabby he grows California poppies, nasturtiums, and annual phlox, sowing the seed right on the permanent bulb beds. September is still not quite full enough, and so he grows some asters. The whole plan is simple, sensible, and economical.

THE FRUIT GROWN

Nine varieties of apples are grown that sometimes produce twenty barrels of apples. The varieties ripen in about the following order: Yellow Transparent (August), Peach, Whitney, Duchess of Oldenburgh, Wealthy, Fameuse, Scarlet Pippin, Mackintosh Red, and Wolf River. The last two keep till January, but winter apples are not sufficiently hardy, e.g., Spy, Greening, and Spitzenburg. Six kinds of plums yield about three barrels a year.

Mr. Whyte grows twenty-five varieties of grapes—and prefers training them on arbors rather than trellises. He has three arbors, which are pleasant places in which to rest or read. On one of them are seven varieties of grapes. Mr. Whyte thinks that small gardens should have few trees and many vines. Grapes take up less room, give more convenient shade, and are highly ornamental.

Gooseberries are Mr. Whyte's specialty. He grows the European varieties, which are about as large as plums and are eaten out of hand when ripe. He has never failed to get first prize for his collection of varieties, which is the largest in Canada—thirty-five varieties and twenty-five unnamed seedlings. They are grown on a heavy, clay soil. He gives them a little shade by putting them near the fence, and supplies plenty of moisture so that the roots are always cool and moist. Five to eight quarts is a fair crop, but sometimes a bush will yield eleven quarts. A bush lasts ten or twelve years. Mr. Whyte then layers it and starts anew. The fruits are one and a quarter to one and three-quarter inches in length. None are tart when ripe. The plants are bought in Europe.

The most wonderful fruit in Mr. Whyte's garden is the Herbert raspberry—the one he produced and for which he got five hundred dollars. This is believed to be the finest flavored, big-

One of the Rich Effects in Mr. Whyte's Garden

The flowers shown are White Poppy—Snowdrifts—in the foreground with sweet peas, grown on wire cylinders, behind.

Another View in Mr. Whyte's Famous Half Acre Garden

Shirley poppies may here be seen with Blue Larkspur and apple trees in the background.

gest yielding, and hardiest red raspberry in the world."

HIS OWN GARDENER

Mr. Whyte, who is the president of the Ontario Horticultural Association, is his own gardener. Each day he works in his garden from about six until half-past eight in the morning. The rest of the day, from nine until six, is spent by Mr. Whyte in his wholesale office. He does not go home at noon. The evening is reserved mainly for rest and enjoyment of the garden. It is to be wondered at that a garden such as this has attracted such wide attention, or that it has been much admired from time to time by the representatives in Ottawa of our King and Queen

July Work With The Flowers

Wm. Hunt, O.A.C., Guelph, Ont.

KEEP the flowers of sweet peas picked at least every second day after they start flowering, to prevent them from seeding. If allowed to seed the flowering period will be of short duration. If the weather is very hot and dry, spray them with cold water at least once or twice a week on the under side of the foliage to keep down aphis and red spider. If they require watering at the roots, remember that a good soaking once a week is better than giving them a little water every day. Sweet peas are deep rooted plants; light surface watering is no good to them.

Spray the tops of dahlias every day in hot weather and keep them moist at the roots. Cut off the small weak shoots close to the ground and allow only two or three main stems at the most to each plant. One stem only is best if large blooms are required, unless the plants are very robust and strong. Be sure to put a strong stake to each plant and tie it up before the stem gets broken off by windstorms or some other cause. It is a good plan to drive a stake in by the plant when it is planted, as it is often left too late.

Watch out for the small tarnished plant bug that spoils the aster buds when they are quite small. The tarnished plant bug is a small, brownish-grey insect about half an inch in length, very like a small fly. This bug can be easily recognized when examining the plants from the fact that it disappears quickly on the plant being touched, usually darting underneath the leaves out of sight, or dropping to the ground where it cannot be seen, or perhaps flying away. The best time to catch these pests is in the very early morning.

A good remedy is to sprinkle the plants a few times early in the morning with wood ashes, pyrethrum powder, hellebore, or tobacco dust. This is the same bug that destroys the terminal growth of chrysanthemums, causing blindshoots, from which no flowers develop. It was the main cause of the discontinuance of growing chrysanthemum plants out of doors in the summer time. They sometimes attack these plants in greenhouses. The best remedy for them in the greenhouses is to fumigate with potassium cyanide, using about one quarter of an ounce of cyanide per thousand cubic feet in the usual way. This remedy cannot be used in a dwelling-house on account of the deadly nature of the fumes.

CALLA LILIES

Do not allow the roots of calla lilies to become too dry. It is a mistake to dry these plants too severely, especially for window culture. If the pots they are in are plunged in the ground in a partially shaded place, and the soil kept barely moist, they succeed much better than when they are dried out too severely. Complaints are often made of the calla lily not flowering. This is often caused from drying out the roots too severely during the resting period. I have taken them out of the pots early in July and planted them out in a light, rich soil in the open garden, and kept them well watered. When the growth was about twelve inches in height, they were lifted carefully and potted. The results, both as to quality and quantity of flowers, well repaid the extra trouble taken with them.

Culture of the Sweet Pea

H. J. Edwards, Winnipeg, Man.

When sweet peas begin to bloom, it is best to cut all the fully developed flowers daily. See that no seed pods are allowed to form; if this is not done the plants will cease to bloom.

In dry weather give a liberal supply of water, and occasionally a little weak liquid manure. If the above directions are followed the plants should be in bloom from the first week in July until fall. The grandiflora type will withstand the wind far better than any of the Spencers. When named varieties are grown, all rogues should be carefully removed; and leaving one strong plant to every three or four sticks (about 12 inches) is a secret to success.

SUCCESS CERTAIN

I am confident that anyone who adopts the method of cultivation, I have here suggested, will be fully repaid by the result; not only will there be a considerable increase in the length of the stems, larger and finer flowers, but also a greater profusion of blooms compared with the average sweet peas we usually see in Manitoba.

When there are more flowers than are needed, I would like to mention that we have a number of institutions in this province where the sick and injured are being cared for. The majority of patients in these institutions are always pleased with the gift of a few flowers and no flowers are more highly appreciated than a well grown bunch of what is said to be the sweetest and most indispensable of all the annuals, Lathyrus Odoratus.

For aphis, take four ounces of quassia chips, boil ten minutes in a gallon of soft water; strain off the chips and add four ounces of soft soap, which should be dissolved in it as it cools, stirring it before using. This decoction of quassia chips and soft soap is the least offensive and the most efficacious of all aphis remedies.

Summer Care of the Lawn

Miss Florence A. Deeks, Toronto Ont.

When the ground for the lawn has been well prepared and thoroughly enriched—it can scarcely be too rich—and a desirable turf established by seeding or careful sodding, it is advisable to mow it regularly while the grass is short enough to be left lying after it is cut. This gives that soft, velvety appearance and supplies valuable mulch for the soil without taking anything out of it. But the cutting must be done while the grass is quite short, for it is an injury rather than a benefit to leave long grass lying on the turf. Moreover, a brown or sunburnt spot or a weedy patch calls for immediate attention.

Of all weeds that infest the lawn, the dandelion excels for persistent and luxuriant growth. Numbers of blooming dandelions might awaken admiration for the moment, were we unmindful of the millions of beautiful tender blades of grass starved and smothered by them, but the dandelion so greedily absorbs food from the soil and carbonic acid gas from the atmosphere, and spreads its thick mass of leaves over so large an area, depriving the soil of the heat, light, air and moisture, so greatly needed by the grass, that it ought to be eradicated. So, although

"The face of nature smiles serenely gay,
And even the motley race of weeds enhance
Her rural charms, yet, let them not be spared;
Still as they rise unconquered . . . . . crush them.
In wood and field there let them grow
By haunted streamlet" . . . . .

Nothing can be used on the dandelion to kill it, that will not kill the grass also. The only means of exterminating it is to cut it out about an inch or so below the point where the leaves sprout. It is better to do this before the flower matures and the seeds become scattered, for the dandelion multiplies wholly from the seed and blossoms more or less throughout the season.

The most effective little implement for the purpose is the "Ideal" Dandelion and Weed Extractor, which is much more easily handled than a knife, and can be procured at leading hardware establishments. By the repeated use of it, this most troublesome of all lawn weeds can be effectually overcome.

Ants on Roots of Asters

What can I do to get rid of red ants on the roots of my asters. The ants seem to attack the roots of the asters by means of a white aphis. The aphis sucks the life out of the plant and the ants live on the aphis? —C. F.

This aphis or root louse gives forth a sweet secretion or excretion, called honey dew, upon which the ants feed. If the plant lice are killed, the ants will disappear from that place; or the ants' nest can be destroyed, using tobacco dust in abundance around the roots of the plants to be protected; or make a hole in the soil near the roots of the plants and put in a little carbon bisulfide and close the hole. The carbon bisulfide fumes will kill the pests, while the tobacco dust will fertilize the plants and also repel the pests. Wood ashes will also repel them, as proven by us in personal experiments for aphids on roots of pear trees.—Prof H. A. Surface.

The First Prize Lawn and Boulevard, Barrie Horticultural Society's Competition, 1910 Residence A. Carson.

The Dahlia and its Care

J. McPherson Ross, Toronto, Ont.

The dahlia is usually a free bloomer, but to have good flowers for exhibition purposes, it is well to thin out all immature buds by pinching them off. Only allow perfect flowers to develop.

For a long time the dahlia has been immune from insect attacks, but of recent years an insect preys on the small buds, causing them to wither and dry up and fall off. For one season I had hardly any dahlias, but a liberal sprinkling of Hellebore quite early in the plant's growth has warded off the pest. I also recommend Kerosene Emulsion—enough to saturate the soil around the stem. This is a good remedy. In very dry weather the red spider is apt to be a nuisance. Liberal syringing of water is the cure for that.

If your dahlias seem to be at a standstill, a liberal watering of liquid manure, which can hardly be made too strong, will produce surprising results.

The dahlia has lately come into new favor by the introduction of the cactus and quilled varieties. These are decidedly decorative types, useful for bouquets. The fantastic flowers in rich colors make them especially desirable for home adornment. Every year adds some new variety, so that it is hardly necessary for me to specify any kinds when all are so good.

Watch Your Amaryllis

Thos. Jackson, M. A. C., Winnipeg

When the Amaryllis is developing the flower scapes a weak solution of manure water or any good fertilizer given occasionally will help to bring out the flowers to perfection. After flowering, the greatest care should be taken of the plants, as it is from that period till the end of the summer that the principal growth is made. I might mention here that the Amaryllis is not like the hyacinth or narcissus, which after the first year or two have their course and have to be thrown away. With good treatment the Amaryllis will keep for years and flower every year. In fact, you can increase the stock by taking off the young bulbs which grow on the side of the old bulb. The best time to do this is during the resting period, and to get the best results it is advisable not to take them off until they have made some roots, and then pot them off separately in small pots.

About the middle or end of September the plant will have finished growing, and from that time until about January give them very little water, keep them on the dry side, for this their resting period, and by doing this the bulbs will flower better the following year. There are a number of varieties to select from, but all of them are beautiful. The price is a little higher than for most other bulbs, but they are well worth it. With good treatment they will keep for years, giving great pleasure to the grower.

The Cultivation of Celery

A. McInnis, London, Ont.

Where celery is planted in single rows it will be necessary to maintain shallow cultivation between the rows. At no time should deep cultivation be practised, as the roots are to be found near the surface of the soil. If a mulch is used, no cultivation will be required, either along the side or between the plants in the row, except to pull any weeds that may spring up. Where a mulch is used it will be necessary to stir the surface lightly with a wheel hoe or iron rake, to prevent a crust forming after each rain or watering. Keep the surface of the soil smooth and in no case allow lumps of earth to remain near the plants.

The Planet Junior is desirable for working between the rows, while the wheel hoe is especially useful in cultivating a small area of celery or for stirring the soil close to plants. When a crop of celery is in good growing condition the roots will be near the surface. During a dry season the roots will go deep into the soil in order to secure moisture. This can be prevented by keeping the surface of the soil well stirred to a depth of not more than two inches forming a sort of dust mulch, beneath which the moisture will be drawn upward and prevented from passing into the air by the presence of the loose soil on top. Under these conditions the roots will work near the moisture line and consequently a larger growth and better quality will be obtained.

The effects of a drought may in most cases be met by frequent shallow cultivation, supplemented by the use of water, if available. When the water is sprinkled over the entire surface it should be done late in the day, so that the soil may, during the night, absorb the moisture and prevent a crust being formed, as would be the case were the water applied under the direct rays of the sun.

Potatoes in Saskatchewan

G. T. Perley, Prince Albert, Sask.

I had occasion to ask one of my farmer friends for the privilege of planting a few potatoes on his farm, and went to work to plant the way we used to in Ontario—that is to say, by throwing out the furrow in ridges and splitting the furrow to cover the potato. Had the season been wet enough this would have been all right, but dry weather came and I found I had no soil between the rows to bank up with, and as a consequence I had only a small crop of potatoes.

My farmer friend went at it rather differently. He planted his potatoes every fourth row and kept his sets well apart in the row. When the vines were large enough he threw up a good furrow on each side of the row at a time when the ground was damp. This mound of earth kept the ground moist and he had potatoes larger than a man's hand.

I met another man who had a nice patch of potatoes. He claimed that potatoes should not be cut in this country, but I could see no difference on that account, as the principal thing is to have a good heavy mould for a dry season.

The Kitchen Garden

E. G. Cooper, Alberta

Any one wishing to get large results from a kitchen garden must invariably practice the following rules:

In the first place, good seed must be secured of the very best quality; second, the best kinds of the different vegetables and small fruits must be secured, and next to this good soil is needed; in fact, even if the soil is rich, one must make it more so in order that the strain on the soil can be sustained. You cannot have the ground too rich for close cultivation.

There shuld not be any waste ground. Every foot of soil should be made to produce something that will be of use to the family.

NAMES OF COMMON WEEDS

Then again no weeds of any description should be allowed to start. It may be useful just here to name some of the weeds in question. I will only give the common names. The red root or pig weed, lambs quarter, chickweed, shepherd grass, foxtail ,blue grass, carpet weed, sour grass, cockel, Canadian thistle, Scotch thistle, milk thistle, milk weed, wild ferns, burdocks, tall dock, twitch grass—this is the most injurious of grasses. Then there is the pursley or flat weed. This is an uncommonly bad weed that cannot be subdued without the utmost vigilance. It does not appear until the warm weather comes, and the ground becomes warm. Not even one plant should be allowed to seed as that one would produce some thousands of seeds. The weeds should be carried off the ground to the compost heap. No weeds should be allowed to run to seed, and if it is possible that any one should be missed and allowed to go to seed it should be immediately burnt, as this is the only way of destroying weed seed. All weeds not ready to seed can be put in compost heap.

As soon as the onions are large enough to follow the rows, start cultivating, using the wings, and work as close to row as possible. Start hand weeding immediately after cultivating the second time. Use the cultivators or diggers as long as possible, for by so doing you retain moisture and keep weeds under control.

Fertilizers can only give their best returns when good cultivation is carried on at the same time—they cannot take its place.

Pollinating Cucumbers

S. Clark, St. Catherines, Ont.

I would like to correct a mistake contained in the extract from Mr. A. G. Wooley Dod's paper, published in the May issue of THE CANADIAN HORTICULTURIST. He advises growers of cucumbers to propagate the flower (I conclude he means pollinate.) My experience leads me to advise quite the opposite. In common with many successful growers, I have always done my utmost to prevent pollination, by pinching off the male flowers, before they have opened and also by keeping out bees in case any male flowers had been overlooked and allowed to open. It is a strictly enforced rule amongst the large growers for the English market, that pollination be avoided.

Mr. Dod mentions the Telegraph variety. I may say that I have grown that particular sort with success. Two years ago I cut 1,667 perfectly shaped cucumbers from thirty-eight plants of that kind.

I hope that readers of THE CANADIAN HORTICULTURIST, instead of pollinating the flowers on their cucumbers, will do all they can to avoid pollination, unless they wish to secure seed for another year.

In case seed is required, I advise pollinating a few flowers after securing fruit in the early part of the season. Plants do not possess the same vigor after a few flowers have been pollinated and the seeds are forming.

Intensive Gardening

H. R. Frankland, Toronto

I thought I would like to give an idea of what a man can do in vegetable and flower gardening if he makes up his mind to do it. Last year, as my wife and daughter were going to Europe I thought to keep myself employed, I ploughed up a strip one hundred feet wide by two hundred feet long, and planted two bags of potatoes, one pound corn (early), one pound Stowell's evergreen corn (late), two hundred cabbages, two hundred tomatoes seven thousand celery, one ounce carrot seed, one ounce beets, one ounce parsnips, two hundred cauliflowers, forty hills cucumbers, twenty hills muskmelons, besides packages of sage, thyme, etc. I also planted one pound beans, and kept all of this free from weeds, and hoed up the potatoes and celery myself.

Besides the vegetables, I had a quarter of an acre of flowers, two beds of perennials, two hundred dahlias, gladiolus, asters and other plants and bulbs that go to make a home look beautiful. I worked early and late from April until the middle of August with no help, and never had such a good crop of vegetables, and never did the flowers look so well, nor the grass so green.

It is wonderful what can be grown in a back yard if you have proper ground. I noticed one man with only a piece of ground eighteen by one hundred and ten feet, on which the house stood, and around it he was able to grow all the tomatoes, beets, lettuce, parsley, cabbage and flowers that he could use; this all goes to show what can be done if one tries. I started all seeds in hot beds, as well as most of the bulbs, and raised about one hundred chickens .

Around the house I have many kinds of fruit trees, apple, cherry, pear, plum, also black currant and raspberry bushes and grape vines.

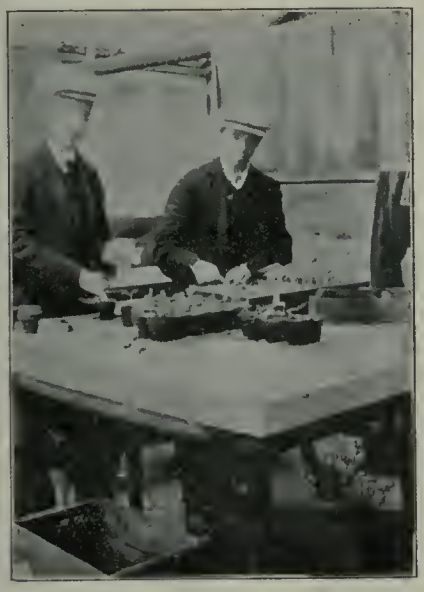
This, too, is one of the ways to keep from growing old.

Growing Tomatoes in the Greenhouse

A. H. MacLennan, B.S.A.

HOTHOUSE tomatoes take four months to first ripe fruit and five to produce a full crop in fair weather, but will take longer if weather is dull and unfavorable.

For the Christmas crop we sow our seed the first week in July. These plants



Transplanting Tomatoes into 2 1 2 in. Pots

should be ready to go into the bed the third or fourth week in August. The seed for our second set of plants for the spring crop in March and April is sown the first week in October and should be ready for the bed by the end of January. Many florists are using tomatoes to fill in the greenhouses in summer. These should be started the first week in March and will be ready to transplant into the house the middle of April, giving a crop in June and July.

RENEWING THE SOIL

We renew our soil each year from a compost heap made up each October as follows: Plow sod about three inches deep, then haul to a well drained spot near the house. Then place two layers of sod, grass sides together, then a layer of four inches of manure. Alternate these two up to the required height of pile. This gives the fertility in the manure a good chance to penetrate into the soil. Many, however, renew their old soil with manure. This, if well rotted, may be immediately dug in, but if fresh is placed on top and kept watered for three or four weeks, in this way washing the fertility down into the soil. Then the rough manure is raked off and the bed dug over. Between each crop we dig in a fair quantity of well rotted manure. Some growers use wood ashes or muriate of potash and bone meal on alternate crops. The soil should be limed at least once a year to keep it sweet.

The seed is sown in flats in soil, one sand and one compost. When seedlings are showing the first true leaves we transplant them into two-inch pots in a soil made up of one of sand to three of compost. The plants should be carefully atered and shaded when necessary if the sun is shining. The plants should be set fairly deeply. When the plant has filled the two-inch pot with roots and your bed is not ready you should transfer to four or five inch pots, so as to give no check. This is especially necessary with the second crop since weather conditions may hold back the crop. Never wet plants too much, as it causes them to turn yellow and grow spindly. A little dryness will produce a larger root system and sturdier plant.

In setting plants for the Christmas crop, we set them two feet apart each way, diagonally. For the spring and summer crops, eighteen inches each way. Set the plants at least one inch lower than they were in the pots.

METHOD OF PRUNING

We prune the plants to one stem, breaking off all side shoots as soon as they appear. One wire is run the length of the house above each row of plants on a level with the gutter. To this one upright wire is run from each plant, fastening to the top wire with a clip and placing in the soil next the plant. The plants are tied to the wire with raffia or soft cord, care being taken not to tie too tightly. When the first fruit begins to color all leaves below them should be cut from the stalks. When all fruit has set that you wish to ripen, nip off the tops.

Tomato plants like a dry atmosphere. Dampness breeds disease and hinders pollination. The temperature at night is best at 60 degrees, with 10 to 15 degrees higher during the day. Keep the ventilators open whenever possible when weather is suitable, around noon being the best time.

WATERING

Two methods of watering are in use in Ontario in tomato greenhouses—sub-irrigation and surface watering. Sub-irrigation is simply laying tile just below the surface of the bed two feet apart, with a filling pipe coming above the soil at one end. Surface watering is accomplished either with the watering-can or hose.

Sub-irrigation gives a larger yield, a stronger plant, prevents much tip rot, and keeps the soil open and porous like a sponge. Its only disadvantage is the cost of installing. Surface watering causes the soil to pack, prevents much of the water from getting to the bottom of the bed, excludes air, and has a tendency to cause fungous disease from dampness.

Mulching with strawy manure will give very similar results to sub-irrigation. Apply as soon as plants are set permanently. Its only defect is the chance of disease.

Comet, Industry, and Queux Clipper are good varieties for winter use. To these add Bonny Best and Earliana for a spring crop.

Hothouse Tomato Vines Pruned Below the First Fruit Stems

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed.
THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

THE SITUATION IS SERIOUS

We are in receipt of a letter from Dr. C. Gordon Hewitt, Dominion Entomologist, in which, after dealing with certain other matters, he congratulates us upon the timeliness of the editorial published in our June issue, dealing with the Brown-tail Moth situation in Nova Scotia, Dr. Hewitt visited Nova Scotia recently and found the situation more serious than ever this year. The infestation has spread into Maine, which means that that province too must now exert itself more than ever if conditions are to be controlled.

The winter nests or webs that have been found in Nova Scotia this year are of an unusually large size. In several cases over one thousand of the young caterpillars have been found in a single winter web. In one case a web contained over one thousand eight hundred. Not only should the local governments of Nova Scotia and New Brunswick put forth every possible effort to exterminate this pest while yet there is a possibility of doing so but the cooperation of the public should be enlisted and especially of the school children. Were the public properly informed in regard to the seriousness of the situation more might be accomplished than can be by the necessarily comparatively limited number of government inspectors that are available for the work.

OPPORTUNITIES LYING FALLOW

There are thousands of acres of the very best fruit land in Ontario and in Quebec, and in portions of the Maritime provinces, that are waiting to make fortunes for the first enterprising land companies that secure their control and make their possibilities known to the public. A few of these land companies are much needed here in the east. The success a British Columbia company met with last winter selling western fruit lands to people in Montreal and Ottawa proved that there is a good market, even in our eastern cities, for such lands. The ignorance prevalent in our cities concerning the possibilities of nearby fruit land is not a credit to the east. A campaign of education, if conducted by the provincial governments, would meet with a hearty response by the metropolitan and local press, and immense benefit would result.

For several years the advantages enjoyed by portions of certain counties in Ontario, adjoining the Georgian Bay, and the great lakes, and the S. Lawrence River have been pretty generally known. Government officials have been investing privately in this land, and in some cases have resigned their positions in order that they might the better develop the orchards they have purchased. Private companies have been formed also to operate orchards in their districts on a business basis. One company that has had considerable experience in the Georgian Bay District is increasing its capital from twenty-five to one hundred thousand dollars. Another company, controlled mainly by English capital, has attracted much attention recently by leasing and purchasing a large number of orchards in these sections in the expectation of obtaining handsome returns upon their investment. In one section of Ontario the residents are going to extremes in the planting of new orchards. These facts make it all the more difficult to understand why it is land companies, such as operate everywhere in the west, have not made their appearance in these sections more quickly.

One of the first signs of improvement has come from New Brunswick. As noted elsewhere in this issue, a company has been formed which has secured control of 1,200 acres of fruit land in the St. John river valley which it is planting out to trees with the purpose of reselling the land in small blocks to English settlers and others. Properly managed, this company, especially if its efforts are encouraged by the provincial governments, as they well might be, should prove a success. Small companies might be formed in the fruit counties of Nova Scotia and Ontario to boom their local lands in the same manner.

One explanation of the lack of more enterprise in this direction is furnished by the comparative apathy of our provincial governments in encouraging immigration to these lands. Once business men see that the local government intends making a vigorous and sustained effort to encourage such immigration they will be more ready to seize the opportunities the situation will offer.

A CLEARING HOUSE FOR IDEAS

The unselfish devotion of the leading officers and many members of the horticultural societies of Ontario to all that is best and most beautiful in nature is the secret of the success of these organizations. As their membership has increased and new lines of work thereby been made possible there has been an awakening of interest in the work of the societies that augurs well for the future. The splendid work that is being accomplished through the Ontario Horticultural Association in the dissemination of ideas concerning methods of work that have proved successful in different localities has shown the benefit of a central organization to act as a clearing house as it were, for ideas of this kind.

There is a greater search to-day on the part of the officers and members of the societies for information that will help them in their work than ever before. THE CANADIAN HORTICULTURIST has felt this pressure. It has led us to establish a department devoted to the work of the horticultural societies. As the majority of the horticultural societies of Ontario subscribe for THE CANADIAN HORTICULTURIST, for all their members we feel that THE CANADIAN HORTICULTURIST can be made a means of greatly assisting them in their work.

As far as possible we desire to confine the information published in this department to items that will be likely to be of value to other societies by showing them what certain organizations have undertaken or have accomplished. We trust that the officers and even the members of the horticultural societies will assist us to make this department a great success by contributing freely suggestions pertaining to the work of the societies and items of interest.

DISCRETION REQUIRED

The Simcoe Ontario Reformer has rendered public service locally by drawing attention to the fact that many people are sure to be disappointed as a result of a craze that has set in to plant orchards in portions of Norfolk county. The remarkable success that has attended the operations of the Norfolk County Fruit Growers' Association, as well as those of several individual growers, has led to land being set out in orchards wholesale. The Reformer estimates that hundreds of thousands of trees have been planted in the county, and well

asks: "Can twigs stuck in sand and left to struggle, be expected to turn the economy of nature upside down and make fortunes for men without effort on their part?"

We are informed by one of our correspondents in this section that some people seem to have gone wild over the situation, and are buying almost anything that looks like soil. Excellent returns may be obtained from good fruit land properly managed. Those people, however, who forget that even in the best fruit districts there is much land entirely unsuited for fruit culture and that orchards when planted require constant, careful attention, will pay dear for the lessons their experiences will teach them. Intending inexperienced investors in fruit land, no matter where it may be located, will invariably do well to first consult experienced and responsible parties in the sections where they purpose investing. By taking this precaution many an investor has been saved from heavy loss in both time and money.

Canadian fruit growers should be protected this year from the competition of berries and fruit from the United States that are annually sold throughout Canada in baskets and packages that do not conform with the regulations of the Fruit Marks Act. These consignments of fruit are not marked, as they should be, with the name of the importer, the name of the variety, and a designation of the grade, nor are the consignments protected as they should be by the packages being marked "short" to show that they do not comply with the requirements of the law. The staff of fruit inspectors has been increased and this matter should be given immediate and thorough attention.

How pitiful is the extent of the efforts that have been put forth so far in Eastern Canada to give instruction in the proper packing of fruit is shown by a mere statement of what has been accomplished in this direction by the provincial government of British Columbia. In a letter to THE CANADIAN HORTICULTURIST, Mr. R. M. Winslow, the provincial horticulturist, states that last year his branch conducted thirty packing schools over the province from which were graduated nearly four hundred pupils. Diplomas are to be given to those who become successful packers. Mr. Winslow will deal quite fully with this subject in the September issue of THE CANADIAN HORTICULTURIST, which will be our special packing number.

Last fall the fruit growers of British Columbia invited—we might say dared—the fruit growers in Eastern Canada, particularly Ontario, to hold a National Apple Show and promised to made exhibits at such a show. The directors of the Ontario Fruit Growers Association decided not to attempt to hold such a show next fall but to consider the advisibility of holding one during 1912 Could it be that that was only a nice way of shelving the matter? That decision was reached several months ago. Since then the whole question appears to have dropped out of sight. This is not the way to make a success of a National Apple Show in 1912.

It has been announced that the second Dominion Fruit Conference will be held in Ottawa next fall. What subjects are to be discussed? What arrangements are being made for the programme? How is it that we are not hearing more about it?

THE CANADIAN HORTICULTURIST is always deeply interesting and most valuable as a timely reminder of the many things to be attended to at the proper season.—W. H. Leacock, Toronto, Ont.

PUBLISHER'S DESK

Our front cover illustration this month shows some striking, carpet-bedding work in Mount Royal Park, Montreal, Que. It can readily be seen from the illustration that the gardener in charge has done his work well. The photograph was furnished us by Prof. W. S. Blair, Macdonald College, Que.

* * *

Our proposal to make the September issue of the Canadian Horticulturist a special Packing and Exhibition Number is meeting with a most gratifying response. Prominent authorities in horticultural matters have written congratulating us upon our decision and expressing the view that special numbers in which certain important subjects are treated fully, are of great value to the readers of a paper as the information they contain is generally complete and it is furnished at a time when it is of the most benefit to the reader. Fruit and Cold Storage Commissioner J. A. Ruddick, Ottawa, has furnished us already with an important well illustrated article dealing with the precooling of fruit for shipment. This is a subject which already is assuming great importance in certain of our leading fruit districts. This article will be timely and instructive. Mr. Alex. McNeill, Chief of the Fruit Division, will contribute a special article. Dominion Fruit Inspector, P. J. Carey will describe the best methods of harvesting and handling the apple crop. An article on packing pears for the home markets will be furnished by Mr. W. E. Beaman, of Newcastle, Ont. Mr. R. M. Winslow, Provincial Horticulturist for British Columbia, will describe the great work that is being done to improve the fruit pack of that province while a somewhat similar article, but dealing with Nova Scotia's methods will be contributed by Mr. G. H. Vroom, Dominion Fruit Inspector, Middleton, N. S. Within the next few weeks we expect to go to press on the cover of the September issue which is to be printed in several colors and which will be unusually pleasing and attractive in its effect. In fact, it will be much the finest cover that has ever been published on The Canadian Horticulturist. Other special features of this number will be announced in our August issue. Those advertisers who desire to secure special positions and extra space in the September issue will do well to speak early as already many of the best positions have been taken.

* * *

"The Canadian Apple Growers' Guide," explains the best methods of planting, culture, harvesting and marketing apples. It also gives careful descriptions of varieties suitable for Canada written from a Canadian standpoint and from fifty years of personal experience. It is altogether the best authority for Canadian apple growers. The net price is $2.00, but by special clubbing arrangements we are offering this valuable book postpaid and The Canadian Horticulturist for one year, both for $2.00. Those of our readers who do not possess a copy of this book will do well to take advantage of this offer.

* * *

A considerable number of our readers have taken advantage of the offer we made through this department last month to give an exceptionally fine fountain pen to every person who would send us five new subscriptions at sixty cents each. We have given fountain pens for less than five subscriptions—good ones too—but this pen is of extra quality It is pearl mounted, has two handsome gold bands, filled with a solid 14kt. gold pen. Every pen is guaranteed by the manufacturers to give absolute satisfaction. This offer is still open for acceptance by our readers.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

PHOTOGRAPHS WANTED

A considerable number of the horticultural societies in Ontario, including Windsor, Guelph, Smiths Falls, Peterboro and several others, are doing excellent work improving public grounds and buildings by the planting of flower beds and vines and the placing of window boxes. As we desire to make this department of The Canadian Horticulturist of the utmost value to the various horticultural societies we will appreciate it if these societies will furnish us with illustrations of the improvements they have effected.

We purpose publishing in an early issue an illustration of one of the Public Parks in Peterboro that has been under the care of the Peterboro Horticultural Society for several years. An illustration gives a far better idea of what a society is doing than can be conveyed in any other way. We trust, therefore, that the societies will aid us in encouraging more of this work by forwarding as many photographs of this nature as possible.

ST. CATHARINES

Early in June, bags, each containing four gladiolus bulbs, were distributed among the school children of St. Catharines together with a circular giving the names of the bulbs and cultural and other directions. The bulbs that were given included one each of the following varieties: Attraction, a dark, rich crimson with a large white centre; Ceres, white, spotted rose; Isaac Buchanan, an extra fine yellow and Pactole, a creamy-yellow, blotched carmine.

The children were advised to plant the bulbs during the second week in June, in order that blooms might be ready for the exhibition which it is proposed to hold during the second week in September. The society will give, for every bloom exhibited by each scholar, four mixed single tulip bulbs which will be supplied in the fall in time for planting to bloom next spring.

OTTAWA

A magnificent display of roses and paeonies was made by the members of the Ottawa Horticultural Society in St. John's hall at an exhibition held about the middle of June. The paeonies carried all before them, although the roses also were remarkably fine. The weather before the exhibition had been most favorable with the result that the flowers were the finest that had been shown in Ottawa for several years. The principal display of paeonies was made by Mr. R. B. Whyte, a description of whose garden is published elsewhere in this issue. Mr. Whyte displayed a considerable number of varieties and succeeded in capturing most of the first prizes. Other close competitors were Messrs. W. H. Cooper and W. J. Kerr.

In roses, as for many years past Mr.

W. G. Black was the principal winner although D. C. Chamberlain, G. A. White, Ambrose Duffy, and several others captured numerous awards. An exhibit of Sweet Williams and garden flowers by Mrs. Fenn was an attractive feature.

TORONTO

The early June exhibition of the Toronto Horticultural Society was held in a large tent in the Allan Gardens. The display of flowering shrubs, azaleas, and rhododendrons was especially fine. It showed that these shrubs will stand the winters in Toronto when properly protected. Owing to the earliness of the season the lilacs were not quite equal to those shown last year but some fine specimens were on hand.

A feature of the exhibition was a display of palms and flowering plants by Mr. E. F. Collins, Superintendent of the Allan Gardens and of eremulus by Mr. D. O. Cameron. These were not for competition. After the exhibition the flowers were distributed among the hospitals.

The year book for 1911 has been distributed among the members. It is a remarkably attractive publication and the officers of other societies will do well to write to the Secretary, Mr. O. St. George Freer, 103 Bay St., Toronto, for any extra copies that may be available for distribution. Of course there will not be enough copies for distribution among the general public. The book is printed on high-grade paper and is handsomely illustrated. Among the articles it contains is one entitled "How to Grow Eighty-two Varieties of Vegetables with Success in a lot 27x86 ft. by Geo. Baldwin, that was published in The Canadian Horticulturist; an article by the President W. G. MacKendrick, entitled "Roses for Toronto;" one dealing with the cultivation and characteristics of the Dahlia, by Mr. J. MacPherson Ross, a planting table for vegetables by A. B. Cutting and one on Hardy Plants for Permanent Borders by Miss M. E. Blacklock.

SMITH'S FALLS

The Smiths Falls Horticultural Society, with a large increase of membership, has started the season in a vigorous manner. The spring premiums have been distributed, seeds for the school children's floral competition have been given out, the lawn and garden competition committee have completed their arrangements, and further work has been commenced on the park. With generous grants from the government and Municipal Council together with private subscriptions, the society expects to have a record year.

The East Asleep

A. G. Turney, Provincial Horticulturist, St. John, N. B.

New Brunswick's premier apple lands are to be found in the Lower St. John Valley between St. John and Fredericton, and are only from twenty to eighty miles by river transportation from St. John, the national winter port. The valley is one of great scenic beauty and fertility and is a great natural apple belt. To the man who desires to grow apples commercially, I do not know in all Canada of a country where the prospects and markets are better or the environment more ideal.

Were it not a regrettable fact, I should have believed it impossible that British Columbia of late years should have attracted so much capital and so many people from the Old Country fruit lands. Yet, in the face of the great geographical, social and natural advantages possessed by Nova Scotia, New Brunswick, and Ontario, she has accomplished it. In the east we have a less rugged, a more beautiful country; we are within a week's journey from the best market in the world, and the old home of our immigrants. We do not have to resort to artificial methods such as irrigation and frost fighting appliances, and our apples are better flavored.

There is only one explanation. British Columbia is awake and the east is asleep. The signs of the times are, however, not without hope—the east stirs uneasily in its sleep—presently it will rub its eyes—and then let us hope that it will open one and with just one eye open and its great natural advantages, British Columbia, wide awake as it is, will have to look on.

To my mind British Columbia with its lands already at fancy prices, with its higher cost of production and enormous transportation expense, can never seriously compete with the Maritime Provinces on the European market, if we exert ourselves at all. Now is the time for the Province of New Brunswick and Nova Scotia, each keeping to the production of the varieties for which they are best adapted, between them to take a large and commanding place in the supplying of the European apple market from September to May of every year.

It is a matter of great satisfaction to be able to say that companies to develop our fruit lands are already being organized and will soon be in active operation, and I am confidently expectant that the development of fruit growing in the St. John Valley will be the most remarkable feature in the next ten years of Canadian horticulture.

Visitors Welcome

Call at our Nurseries while plants are in bloom and make selection for fall planting.

Magnificent display of

Paeonies and Roses

200 Varieties of Hardy Perennials,
100 Varieties of Flowering Shrubs.

SOMETHING ALWAYS IN FLOWER

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TORONTO

The Better Care of Orchards

A marked feature of the apple industry particularly in Ontario this year will be the number of orchards that are being worked on rental. A large amount of English capital has been invested through two or three companies in this enterprise. In addition to this, many local apple dealers have changed their methods, and instead of buying the fruit in the orchard as in former years, they have proceeded to rent the orchards. This has been done on so large a scale that it cannot fail to materially affect the quantity and quality of apples produced in Ontario orchards. Nearly all these rented orchards will be thoroughly sprayed and many of them have been pruned. In most cases there is a stipulation for cultivation of the ground as well.

It is safe to say, therefore, that there will be several thousand trees this year receiving cultivation, pruning and spraying that did not receive treatment in former years. The immediate effect of this good treatment will be to increase the crop materially the first year. In estimating the apple crop of Ontario for this season, therefore, liberal allowance will have to be made, over and above the usual estimates, for the increased quantity and quality of the apple crop as the result of this feature.

CO-OPERATIVE ASSOCIATIONS

Another important feature is the formation of a large number of new co-operative associations; in all probability the number will be double that of last year. Many of these of course, are small and may not do effective work the first year. The tendency, however, is towards a better quality of fruit, and a larger quantity of it from the same number of trees.

It would be an easy matter, by only ordinary good care, to double the merchantable quantity of Ontario apples. This co-operative movement is not confined to Ontario. The development in Nova Scotia is even more noticeable, and it is not at all improbable that the larger portion of the crop will be handled co-operatively there, if not this year, in the very near future. A large increase in the number of associations is also noted from British Columbia.—Bulletin of The Dominion Fruit Division.

The Cold Storage of Apples*

J. A. Ruddick, Cold Storage Commissoner, Ottawa

Cold storage may be applied to the apple industry in two or three ways: In the first place it is useful for the cooling of the early varieties for immediate shipment. Then it is also useful for the preservation of the later or winter varieties which may be kept for several months; and it has a further use in extending the season for certain special varieties. The earliest varieties are not wanted for long keeping; it is not advisable to try to keep them.

It is inadvisable to try to keep the earliest varieties into the season for other later and superior varieties. Then it is important to get the apples out promptly to secure the early market. These early apples ripen rapidly; that is the reason they are early apples, because their life processes are short and proceed much more rapidly than in the later varieties. That means that the early variety ripens as much in a day as some of the later varieties will in a week or even in a fortnight, and perhaps even more than that. A day or even a few hours at high temperature makes a great difference.

It is of the very greatest advantage to be able to chill these early apples before shipment. They will carry very much better, because being firmer and harder when chilled they do not bruise so readily, and they will reach the consumer in much better condition and with less waste. That is the one way in which we need cold storage for apples of this class.

BOXES VS. BARRELS IN COLD STORAGE

The box or the package is of some importance in this connection, because apples packed in boxes may be cooled more quickly than if they are put in barrels. If you pack apples in barrels during warm weather when the ripening process is proceeding

* Extract from evidence given before the House of Commons Committee on Agriculture.

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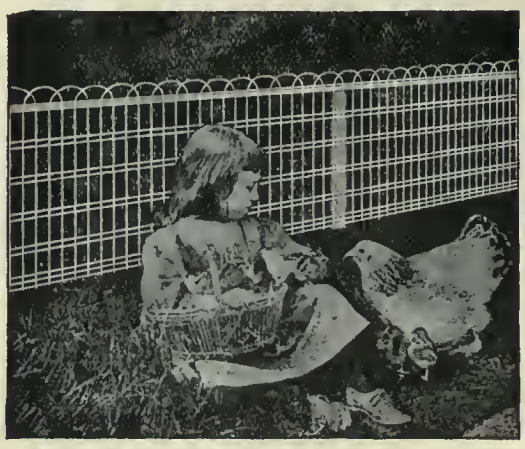

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rapidly there is a great deal of heat generated in the apple itself, and in a tight package like a barrel the heat is confined. The high temperature continues the ripening process and the ripening process generates more heat and the apples deteriorate rapidly under those conditions. In a box which is more or less open, the heat escapes the cooling is effected more rapidly, and there is not the same amount of deterioration in a given time. I have seen experiments reported with early varieties of apples that had been placed in a constant temperature for several days and then when a thermometer was pushed into one of those apples the temperature was found to be as much as two degrees higher than the constant temperature in which they are stored. That is the heat generated by the ripening processes Chemists tell us that they can by analysis determine exactly how many heat units have been generated in the ripening process.

Generally speaking the more matured apple has the better flavor, and there is this to be said: that the fairly well matured apple, which of course is not over-ripe, will keep longer and better in cold storage than a green one will. That is contrary to the opinion that is held by a great many people. An apple ripens more rapidly after it is picked than it does on the tree.

Fruit Reports

Tent Caterpillars have been reported in several districts. This is nothing unusual, nor are there any indications that there is anything like an extraordinary infestation at any point. Nevertheless, indications are not wanting that in the neighborhood of Ottawa there will be many trees defoliated this year unless active measures are taken to repress the Tent Caterpillars. Their food plants are distributed so widely in fence rows and neglected bush lots, that the mild infestation of last year may possibly result in a serious invasion this year. Orchards that are well sprayed with the poisoned Bordeaux mixture will in all probability escape any serious injury.

SPRAYING

Perhaps the most noticeable feature in the reports of correspondents for this month is their universal testimony to the prevalence of spraying. Everywhere orchardists appear to be impressed with the necessity of spraying; and spray pumps, Bordeaux mixture, and lime-sulphur mixture have been used this year where they never were before. It would be less remarkable if these reports came from one or two sections but from Prince Edward Island to British Columbia, there is a universal revival in connection with combating insects and fungous diseases.—Bulletin Dominion Fruit Division.

The Norfolk Ontario Fruit Growers' Association sold last year some 36,000 barrels of apples. In addition it boxed a few pears. It paid to its fruit grower members over $100,000 on the barrel stock alone as well as $25,000 on their cull stock. Who will say that apple growing in the Norfolk district does not bring handsome returns?

At the meeting of the Western Association of Nurserymen at Kansas City, Mo., A. J. Brown gave the following definition of a nurseryman, which the Association approved: "A bona-fide nurseryman is one who propagates and grows trees, plants and shrubs from seeds and cuttings, or by budding and grafting, or by transplanting small stock for growing into large shrubs, regardless of the number of acres so grown."

PROVINCIAL NOTES

Eastern Annapolis Valley

Eunice Buchanan

The apple crop promises to be one of the biggest ever seen in Nova Scotia. The young fruits have set well and there were no frosts to destroy or injure the blossoms. The month of May was very dry, but a heavy shower fell on June 1st and then came a dry period until June 13th when there was another heavy rain; till then things were beginning to look serious.

Small seeds have been very slow in germinating, and those put in early have suffered from the attacks of cutworms, which are very plentiful. A nest of the brown tail moth containing caterpillars was found in Waterville and sent to Truro College for identification.

Strawberries looked in fine condition until the drought, even now there may be more than expected. Frost is reported to have damaged them in Yarmouth County.

Plums do not seem as plentiful as other fruits. Cherries, pears, blackberries, raspberries and currants are loaded with fruit.

In spite of the late spring, the warm weather hurried the apple blossoms out about a week earlier than usual, so that by June 1st there was hardly a blossom to be seen. The lawns have a dried up, August appearance, and the hay crop is almost a failure. The power sprayers have proved to be rapid and more economical than the hand pumps, and probably will soon put the old-fashioned spray rigs out of business. Canker worms are in some orchards in Waterville.

New Brunswick

Apples promise a good crop. The trees came through the winter well, bloomed heavily, set a good proportion of the bloom and have escaped any injurious frost. Many new orchards were started this spring.

As an instance of the development in apple growing that is coming, may be cited the formation last winter of the St. John Valley Fruit and Farm Land Company. This company holds some twelve thousand acres of first-class apple land with a beautiful frontage on the St. John River, at Burton, seventeen miles below Fredericton. The company is developing a large orchard on the unit system and planted two thousand trees this spring and proposes planting between five thousand and ten thousand trees next year. The balance of the property will probably be developed in ten, fifteen and twenty-five acre lots, planted to orchard and with suitable buildings erected. Great progress has already been made and the work of clearing land, making roads, etc., is going forward rapidly. The newly set orchards are composed mainly of Fameuse, McIntosh Red, Wealthy, Alexander or Wolfe River, Duchess and Bethel.

More illustration orchards have been planted in the counties of Queens, Westmoreland, Kent and Northumberland.

Demonstration orchard work on trees of bearing age, after the manner conducted in Ontario, has been taken up in York, Sunbury and Albert counties. Tent caterpillars in many sections have completely stripped unsprayed orchards, but in the demonstration plots they were completely wiped out by the lime sulphur 1-40 and lead arsenate two pounds solution. In one plot of one hundred trees sprayed only once with lime

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The method of transmitting power from the wheels to the beater is simple and direct. There are no unnecessary parts to wear. The beater is large in diameter and the teeth are long, square, and chisel pointed. By using this style of tooth, the manure is thoroughly pulverized and is thrown out before it wedges against the bars. By using a square tooth, rimming of the bars is overcome.

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The apron is supported by steel rollers and the slats are placed close together, so that manure does not sift down and interfere with the movement of the rollers. The steel wheels have ample strength to carry many times the weight they will ever be called upon to bear. The rims are flanged inwardly to prevent cutting and rutting of meadows and accumulation of trash. Z-shaped lugs give the wheel a practically continuous ground-bearing surface and do not jar the machine to pieces. There is no reach to prevent short turning.

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sulphur one-ninth in April, practically no eggs hatched though the egg clusters were abundant on this block and it was badly infested the previous year. The Bud Moth and Leaf Roller are very common and doing a lot of harm.

Mr. R. P. Gorham, a graduate in Horticulture from MacDonald College, Quebec, and a native of Kings Co., will conduct orchard survey work in selected portions of the province during the summer months. It is planned to hold the Provincial Apple Show again in St. John from November 1st to 3rd. While last year's show was the first of the kind held in the province and proved a great success, it is expected to be much improved on this year. The prize money in the box and barrel classes is being more than trebled and the prospects for a good apple crop, together with the experience gained last year, should greatly improve the quality of the exhibits.

A Bulletin on "The Establishment of Apple Orchards and Their Care up to the Tenth Year" by A. G. Turney, the horticulturist, has recently been issued by the Department of Agriculture.

Niagara District Notes

The advance in land values in this district still continues. A few years ago, when Major Roberts paid $10.000 for twelve acres of peach land near Grimsby, every one said "What a high price!" But now such sales are everyday occurrences, and some young peach orchards are valued at $1,200 per acre. Nor does a cherry orchard command less money, if planted with such varieties as Tartarians or Windsors. The prices these fruits bring seem to justify these values, quite aside from the shipping conveniences and the beauty of location to which some give the credit. My first shipment of cherries, sold on June 13th at $1.75 per eleven quart basket! They were Early Purples, and were allowed to hang until fully matured and well rounded; and last season Tartarians brought $1.50 and one lot of Windsors $1.90! These are, of course, the gross sales, from which expenses of express and sale charges must be deducted.

I do not remember such fine loads of all kinds of cherries for thirty years. Every tree carries all it can support, and Richmonds are already (June 19th) a mass of red. And what is best of all, there is no rot, especially on trees sprayed with lime-sulphur. Of course the dry May is death to fungus, and has been a great favor to cherry growers. Nobody need pick his fruit half green to save it, as sometimes, but can let it hang till fully ripe and then market it at its best.

Tomatoes are being grown very extensively in this district this year, in view of the slight advance in price by our factories, from 25 cents to 30 cents per eleven quart basket full, basket returned.—L. W.

Montreal

E. H. Wartman, Dominion Fruit Inspector

We received our first strawberries from Ontario on June 6. They were the Early Michael variety, a very small variety. Every fruit merchant seems to be looking for size and dark color in berries. Why is this the case? The merchant does not like to hear the remarks of passers-by, "What miserable little berries," but would rather hear them say, "What beautiful berries." Size often makes a difference of five cents a box.

Why people crating strawberries do not go over every box and see that it is properly filled before shipping I cannot understand. The berries in the boxes handed in by pickers to be crated are very loose, and

when expressed three or four hundred miles, with a continual jolting, they settle down to two-thirds or three-quarters of a box full, and dealers have to fill them before they can sell them. There is also this other feature that slack filled boxes have so much more room to play that when they are handled roughly or jolted in a car they are much more bruised than the well filled boxes. I will stick to my old text; The man who will pick a quantity of surplus leaves and put them in his ice house and when crating any kind of small fruits will put a layer of leaves between every layer of fruit, will find that it will retain freshness in the berries and help to prevent bruising.

What a wonderful trade and consumption of bananas in our city! Seventeen cars arrived May 23rd, and still there is a good chance to extend the trade. To place a small bunch in the hands of each family in Montreal would take two hundred cars, which would mean four large train loads.

The man who puts in the bottom of a crate of berries a layer of berries that are covered with sand and two or three layers of nice, clean berries is liable to a fine of ten dollars. Sandy berries closed up twenty-four hours in a crate in hot weather, even if washed to get the sand all off the berries, will never have the nice flavor found in clean mulching. It pays to take a little extra pains, even when you are hurried in trying, hot weather.

British Columbia

This year promises to establish new records all along the line as regards the fruit industry of this province. The Horticultural Department of the Provincial Government, under the guidance of R. M. Winslow, is very active in the assistance it is giving our growers. The province has been divided into four districts, in each of which Mr. Winslow has an assistant. It is the duty of these assistants to study their special districts and to report their needs and possibilities to the provincial department. The assistants are: Messrs. M. S. Middleton, C. C. Clarke, J. F. Carpenter, B.S.A., and Ben. Hoy.

The experimental orchards that have been established throughout the province have been placed under the control of one man, who will have charge of the planting and growing of the fruit. Speaking about the work of these orchards recently, Mr. Winslow said:

"After we get the demonstration orchards in good shape we propose to do some experimental work—in spraying, pruning, fertilizers, and in some districts in irrigation. We will also issue a complete set of bulletins on fruit growing and marketing."

It is the intention of the Government this year to confine its exhibition activities to the Dominion of Canada. It will not be officially represented at the Old Country shows during 1911, although numerous boards of trade and co-operative fruit growers' associations will make private and semi-official exhibits of British Columbia fruit. Government exhibits will be made in Canada at Winnipeg, Brandon, Regina, Edmonton, Toronto and London. Mr. W. J. Brandrith has been appointed Exhibition Commissioner. Daily shipments of the finest British Columbia fruit in their season will be forwarded to the exhibitions mentioned, so that the exhibits may be kept fresh.

The fruit crop report of the British Columbia Fruit Growers' Association for the month of June is very complete. It deals with the prospects of all the different varieties of fruit in each of the different fruit districts, and includes reports from Europe, Ontario, Nova Scotia, as well as from the

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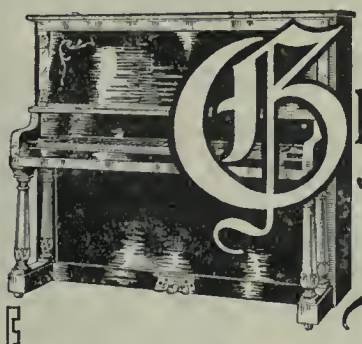

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Jas. McHardy

Hood River Valley. The report indicates that this will be a record year in the fruit production of the province, although a frost in January had a disastrous effect on a number of orchards as a result of which apples may be a somewhat short crop.

The provincial government is distributing bulletin No. 26. This is an elaborate publication printed on high grade paper and profusely illustrated. It gives an excellent idea of the fruit prospects of this province, as well as of openings in other lines of trade. It is a credit to the Department of Agriculture, and should assist greatly in attracting immigration and capital to this province.

The Board of Directors of the British Columbia Fruit Growers' Association held a meeting at Kamloops on June 3rd to consider the proposed reciprocity agreement. A resolution was unanimously carried stating that it was the opinion of the directors that the agreement, if carried, would have a detrimental effect on the fruit industry, and, therefore, that it should be opposed.

A new industry is being established near Nelson where Mr. T. M. McFarland, a recent arrival from Mexico, proposes to go in extensively for raising tropical flowers, particularly orchids, of which he is importing some 3,000.

The nurseries of the province have been completely drained of good varieties this season through the great demand. One good result is that no old stock remains, with the minimum liability to pests. A disadvantage of this condition is that the nurserymen are tempted to dispose of undersized trees. The system of the ranchers of a locality pooling their orders and sending one man to select the stock is increasing in favor.

A remarkable proof of the interest which large and small investors at the coast are taking in Kootenay fruit lands is shown by over fifty recent sales to prospective ranchers in Vancouver, Victoria, Seattle, Tacoma, and Portland.

Herr Otto Becker of Hamburg has purchased a block of land near Wardner where he will start an ostrich farm.

Two years ago the British Columbia Fruit Growers' Association did not have any local associatins affiliated with it. One year ago there were four affiliated associations. Today the following marketing bodies are affiliated: Creston Fruit and Produce exchange, Kootenay Fruit Growers' union, Okanagan Fruit Growers' union, Kelowna Farmers' exchange, Salmon Arm Farmers' exchange, Hatzic Fruit Growers' association, Hammond Fruit association, Victoria Fruit Growers' exchange. In addition to these marketing associations there are also affiliated the Armstrong Fruit Growers' association, Summerland Fruit Growers' association, and Queens Bay Fruit Growers' association, which are not yet shipping associations.

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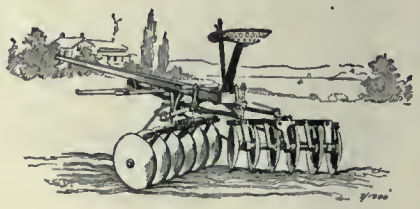

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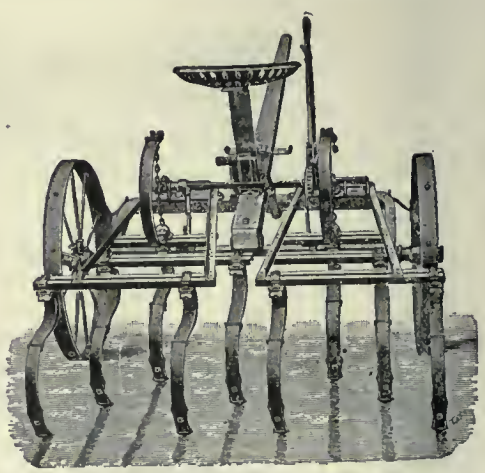

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THE CANADIAN HORTICULTURIST
PETEREORO - ONTARIO

POULTRY DEPT.

Summer Feeding

J. H. Callender, Peterboro, Ont.

Summer feeding of poultry is apt to be allowed to take care of itself, rather more than during the winter months, because it seems to have become a simple matter. The necessity for providing the fowls with every item of their diet when housed up closely, keeps the attendant watchful all the time, and often this is the season when the best results are obtained.

When spring opens up, however, the close attention is relaxed, until one naturally falls into a careless haphazard way of feeding the birds. Possibly, where free range is provided this method might be followed without noticeable evils resulting. But the penned up city flock is no better situated in relation to foraging ground than it was in the winter.

Many poultry yards in the city are just as small a corner as the owner feels like sparing from his little garden, and the chicks are kept confined closely to keep them within bounds also. These small spots have long since forgotten how to produce grass or other green feed. How necessary then to be just as careful with the summer feeding as we are in winter.

Make the feeding ration a varied one, grain of some kind, meat of some kind, and green food of some kind, with lots of fresh clean water.

PREPARING GREEN FOOD

For the benefit of those who may not have learned the method of supplying green food by sprouting oats, not only doing this, but increasing the bulk of the fold, the following directions might be useful:

Soak the oats for twenty-four hours and then turn them into a box or basket which will not hold water. Moisten the oats night and morning, turning them over with the hand until the sprouts appear. They will very soon throw out roots if set in a warm place near the stove. When this happens spread them out about an inch thick on trays of any kind that are easiest

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Windsor salt is all salt —pure, dry, dissolves instantly, and lends a delicious flavor to every dish.

IT'S 15
WINDSOR

to make. After that do not disturb the oats, but keep them well moistened. In a short time there will be a sod about three inches thick, that will be relished by the hens in a way that will do your heart good to see. Feed only what they will eat up clean, and by starting a new lot every few days, the green food question is solved, and the cost reduced at the same time.

If meat foods are hard to get, try breeding maggots: Mix bran and water to a sloppy condition, and let it stand in the sun for a day or two. It does not take it long to turn into a pailful of lively white maggots that will start biddy singing the song we all enjoy to hear.

The whole matter resolves itself into the question of making nature's conditions as near as possible available for the hens and chicks that are shut up, and the attention to detail is almost invariably well rewarded.

Care for the Chickens

John Shakespeare, England

A common cause of chicken mortality is derangement of the bowels, and the chief causes of bowel troubles are sour and tainted food and a faulty water supply. Often chicks are over-supplied with soft food, and that which is uneaten is allowed to lie about and get soured by the sun, with the result that when consumed by the birds it sets up bowel troubles. Tainted food, that is, food thrown on to unclean ground near the brood coops, or on the tainted litter of the brooders, is at the root of many bowel ailments among chicks. When chicks are being fed on mash the food should be placed either on pieces of board or in shallow troughs, and no more should be allowed the youngsters than they can greedily clear up.

Foul water is equally as bad as tainted food. If the water vessels are placed where dirt can be scratched into them, or where the sun's rays can reach them, their contents will account for bowel troubles, and the slow but sure poisoning of the chickens. I am a great believer in a plentiful supply of pure, cool drinking water for chicks, as such is nature's drink.

Chickens injudiciously fed suffer more with constipation than is generally imagined. The feeding of too much dry food and too little vegetable matter is often at the bottom of this ailment. The voidings in some cases become so hard as to cause much abdominal straining and the vent becomes entirely blocked up with the excreta that adheres to and around it, and unless speedy assistance is rendered the sufferers soon succumb.—Poultry Advocate.

Farmers along the St. Lawrence River, as far east as Cornwall, are waking up to the fact that there is more money in the growing of fruit than in the dairy business, to which most of them have devoted nearly all their attention. D. A. McIntosh of Harrison recently set out 525 fruit trees, 500 of which are McIntosh Red, Mann, Monroe, and Ben Davis apples, and 25 Montmorency large cherres. The demonstrations of fruit culture carried on by representatives of the department of agriculture in this district are having good results in causing farmers to pay more attention to fruit growing.

Horticultural Gentlemen: — I notice in this article of yours, that you have cultivated hothouse lilac bushes that have attained the height of over fifty feet." Literary Man: "Yes, why?" Horticultural Gentleman (musingly): "Nothing; only I wish I could lilac that."

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A British Importer's Suggestions

Andrew Chalmers, Glasgow, (Per W.R.G.)

Last season was an exceptional season in the apple trade. Owing to the scarcity of all kinds of fruit all over the world, prices were realized then that could not be taken as a guide in an ordinary year. Big prices were made throughout the season for good stuff, and even inferior apples did well. Some Canadian shippers took advantage of this, and shipped apples that would not pass as first quality in another year. The weather, of course, which prevailed in Canada last year was detrimental to the crop, and I hope this year it will be very different.

Large quantities of box apples arrived here from Oregon and the Yakima Valley districts, and made good prices. These would not have done so well, however, had it not been for the shortage of Canadian apples. I don't see why Canadian shippers do not pack some of their selected fruit in boxes, as some buyers prefer box fruit.

Now that there is an established demand for apples, they are wanted in October, and the most popular fall varieties are Snows, Fameuse, McIntosh Red, etc., and the winter varieties which sell best here are Spies, Kings, Baldwins, Russets, Starks, and good clean Greenings.

There is every prospect of a good season ahead for apple shippers and if a man packs sound, well graded apples, he need have no fear that they will not do well. Once buyers come to know that a certain brand is good, they will wait on this brand coming in, and refuse all others. Then, of course, it is necessary for a shipper to maintain the good reputation gained for his apples by supervising the packing carefully. If the fruit lands here in good condition, satisfactory prices will be returned.

Bulletins and Reports

During the past month a number of extremely valuable bulletins have reached the Canadian Horticulturist as well as some books for review. The latter include a new book entitled "Weeds of The Farm and Garden," by L. H. Pammel, Professor of Botany of the Iowa State College. This book comprises some three hundred pages, is profusely illustrated and is one of the most complete treatises on weeds that has yet been issued. It is published by the Orange Judd Co. and may be purchased through The Canadian Horticulturist.

A second book, entitled "The Canadian Garden," is by Mrs. Annie L. Jack, who has been contributing recently to The Canadian Horticulturist including this issue. This is an attractively printed book and deals simply with the best methods of planning and caring for the garden and lawn, considerable attention being given also to the growing of fruit. It contains much valuable information, especially for amateurs.

The bulletins include one entitled "Hardy Apples for the Canadian Northwest," by Wm. Saunders, until recently the Director of the Experimental Farms. It is bulletin 38 and deals with the progress being made in breeding hardy apples for the West.

Most useful information for beginners in apple culture and even for experienced growers is contained in Bulletin No. 4 by A. G. Turney, Horticulturist of the Department of Agriculture for New Brunswick. It is entitled "The Establishment of Apple Orchards and Their Care up to the Tenth Year." The subject is dealt with at considerable length, numerous illustrations being used. This bulletin is printed on rather inferior paper and when compared with the other bulletins we receive from all

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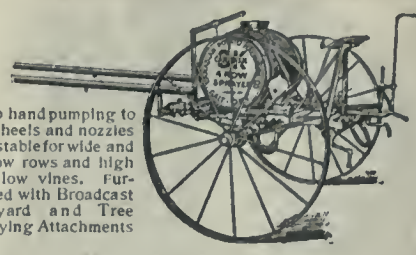

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FOUNTAIN PEN FREE

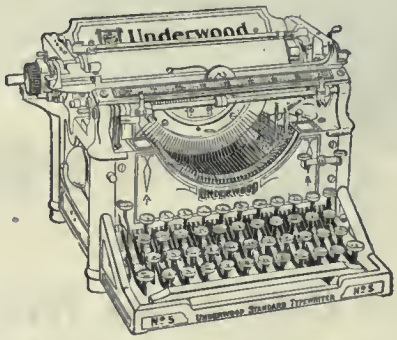
Send Five New Subscriptions to The Canadian Horticulturist at 60 cents a year, and receive Free a handsome guaranteed Fountain Pen. See illustration of pen and offer on another page.

FALL PACKING NUMBER

Remember the combined Fall Packing and Exhibition Number with its colored front cover and its special articles on the picking, handling and marketing of fruits. It will be worth dollars to every fruit grower, and will be kept where it can be referred to often. A splendid issue for ADVERTISERS. WILL YOU BE IN?

Some History

about *Typewriters*



Modern and Ancient

CHAPTER 2

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BUT YOU cannot make a silk purse out of a sow's ear, and they could not successfully incorporate the new principle into their antique machines.

IN THE attempt they sacrificed the mechanical excellence resulting from 20 years' experience, and at the same time fell far short of the Underwood Standard.

ALL TYPEWRITERS now manufactured are visible writers. There have been a score of near-Underwoods placed on the market during the past three or four years.

United Typewriter Co.
Limited
TORONTO

parts of the continent is inferior looking, a number of the illustrations being quite indistinct. The New Brunswick Government should use better paper.

"Spraying Experiments with Peaches" is the title of Bulletin No. 236, by Maurice A. Blake and Arthur J. Farley of the New Jersey Agricultural Experiment Station. It sets out some valuable information dealing with the control of peach scab and brown rot.

"Orchard Spraying Demonstrations" are described in Bulletin No. 189, by W. W. Bonns, B. S., of the Maine Agricultural Experiment Station. It contains a discussion of spraying experiments in the past, the problem of "spray injury" or "Bordeaux Injury" and the substitution of lime-sulphur preparations for Bordeaux as fungicide. Directions are given for the preparation of stock solutions of lime-sulphur and for their dilution for use. A discussion of proper time and methods is included. This bulletin costs 10c.

Advice on "The Purchase and Home Mixing of Fertilizers" is given in circular No. 12, by F. W. Taylor, of the New Hampshire Experiment Station. The subjects dealt with include how to interpret a fertilizer guarantee, high-grade versus low-grade fertilizers, advantages of home mixing fertilizers, directions for home mixing and fertilizer formulas for different crops.

"Horticultural Information, How to Obtain It" is the title of circular No. 11, by D. S. Pickett, of the New Hampshire Station. It gives a list of leading books and bulletins dealing with fruit culture, vegetable gardening, floriculture and greenhouse management and landscape gardening. The New Hampshire College of Agriculture is also issuing bulletin No. 151 being its 21st and 22nd Annual Reports.

Harvesting Raspberries

Chas. F. Sprott, Burnaby Lake, B. C.

In harvesting the raspberry, too much care cannot be given to make the package attractive. The crates should have the name of the grower and his address printed on them, if possible.

If the crate be clean and the boxes well filled with sound ripe fruit, the grower will find that his fruit will always sell, probably before the day's shipment arrives in town the dealer will have orders booked ahead. In all likelihood the fruit will command a higher price than that of other people, who do not take any particular care. As soon as the fruit is finished, clean up the patch, cutting out all useless wood, new and old, and burning it at once.

Nova Scotia Apple Imports

The total apple export from Halifax during the season of 1910-1911 was 246, 513 barrels, 885 half barrels, and 3,161 boxes, equal in all to 248,009 barrels. In addition to this there was an estimated local consumption of 75,000 barrels making a total output of 323,009 barrels for the past season.

Of the apples exported, 10,948 barrels went to Newfoundland, 1,324 to the West Indies; 2181 barrels, 396 half barrels and 562 boxes to South Africa. The rest found a market in Great Britain. London took 209,472 barrels; Liverpool, 20,223, and Bristol, 2365.

During the last three years the output has been: — 1908-09, 710,733 barrels, 2547 half barrels, 3052 boxes; 1909-10, 832,207 barrels, 628 half barrels, 4,885 boxes; 1910-11, 321,513 barrels, 885 half barrels, 3161 boxes.

The Canadian Horticulturist

Vol. XXXIV AUGUST, 1911 No. 8

The Apple Orchard During August

Grant S. Peart, Burlington, Ont.

August is a month during which little orchard work can be done to advantage by the apple grower. The time for clean cultivation, spraying and summer pruning is past, the thinning season is about over, except where trees of winter varieties are heavily laden, and neither should cover crops be sown this month where orchards are carrying fruit.

This breathing spell, however, affords the orchardist an opportunity to do one or two things that are generally, and I may say sometimes unwisely overlooked in orchard practice. Suckers that have grown from around the root crowns of the trees should be removed and branches diseased with the blight should be cut and destroyed. The handiest tools for accomplishing the former work, are a mallet, a two-inch chisel and a spade. Roots that are sources of suckers are bared with the spade and the suckers are removed close to the roots with the chisel.

In August blighted portions of the trees are readily discernible. The diseased leaves and branches have a wilted and fire-fanged appearance and in some cases the branches are devoid of leaves. Also, the bark appears shrivelled and cracked, and is darker in color than healthy stock.

If removed now these infectious portions will not act as a source of contamination to the rest of the orchard next spring, nor during the winter pruning operations. There is always danger of carrying the disease germs in the saw, consequently it is furthermore advisable to disinfect the saw each time it cuts a diseased branch. A ten per cent. formalin solution gives satisfaction and does not corrode nor in any way injure the tools. This disinfecting material is most readily carried in a bottle. A swab is made by pushing a wire through the cork into the bottle and cotton wrapped around the wire.

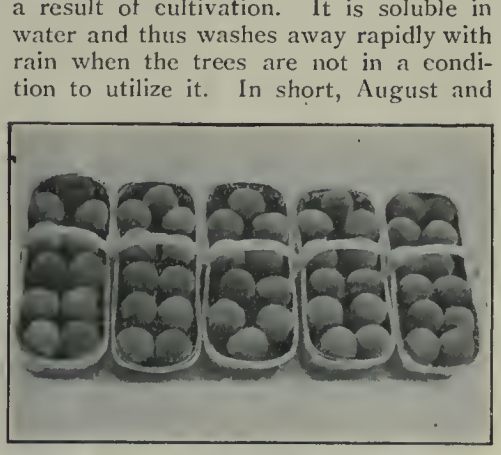
HOW TO OPERATE.

In every case the incision should be made at least from six to twelve inches below the diseased parts of the branch, so as to insure the removal of it all. All these prunings should be destroyed at once by burning. If allowed to lie around the orchard, borers, especially the shot-hole borer, will work in them and consequently carry the disease to the trees again. Thus it is very important that the prunings be burned.

When cultivation is discontinued at the beginning of August, the result is greater maturity, both in young wood and the fruit. The trees suffer less winter injury from frosts and a more highly

A Yard of Louth Clinton Peaches

colored, better quality of fruit is obtained. Scientists develop this still further by maintaining that it checks the hibernation of plant food. This, they claim, becomes available to plants indirectly as a result of cultivation. It is soluble in water and thus washes away rapidly with rain when the trees are not in a condition to utilize it. In short, August and



Five Baskets of Louth Clinton Peaches

fall cultivation of the orchard and summer-fallowing the land for winter wheat are considered at par as practices that impoverish a soil.

THIN WHERE NEEDED

There is still time to thin apples on trees of winter varieties, where they are carrying a heavy set of fruit. They have before them yet quite a lapse of time in which to mature so that the remaining apples, if the apples are thinned now, will have an opportunity to develop into number ones. If thinning is done, it is advisable to remove all sun-blistered fruit—the result of excessive July heat. These apples can never hope to be anything better than culls or number threes, and thus will be worth but little. These sun-injured apples are located chiefly at the western quarter of the tree, and in exposed positions and can be readily recognized.

DO NOT SOW COVER CROPS

Cover crops should not be sown in orchards bearing apples during August. This statement is the result of experience among apple growers. Leguminous crops, such as clovers, vetches and so forth, if sown this late cannot get growth enough to be of any material advantage to the orchard, while it is conceded out of the question to sow cereals, including rye, wheat, and so forth, and also field peas, during August. They attain too much growth, and thus act as a veritable nuisance during the apple harvest, while moving about the orchard with the ladders and other appliances.

Louth-Clinton Peaches

The peaches shown in the accompanying illustrations were found in the No. 1 and "Fancy" grades being packed by their grower, Mr. S. H. Rittenhouse, of Jordan Harbor, in the Louth-Clinton peach area, Ontario. They show Elbertas among which few No. 2s were found. The three-feet-of-peach samples were taken from the center one of the five baskets of Louth-Clinton peaches.

Mr. Rittenhouse practises severe heading-in of young trees until they begin to bear fruit when this is not so necessary excepting after a season during which a greater portion of the strength of the tree may have gone to wood because of a light fruit crop. The proper amount of fruit for each tree to mature is controlled chiefly by judicious pruning, hand thinning being resorted to only when conditions demand it on varieties which commonly set too heavily.

LIBERAL FERTILIZATION

Mr. Rittenhouse is a firm believer in the old, reliable barnyard manure for a general feeder and uses it liberally. Hairy vetch and red-top clover are used for cover crops and to augment the supply of nitrogenous matter and commercial fertilizers when necessary to furnish a greater amount of nitrogen, phosphic acid and potash, all of these being discovered by a close study of the requis-

ites for the crop and the evident condition of the soil to supply them.

Thorough cultivation is practised until the crop is well filled out, then it is totally discontinued except in an extremely dry season when a brush with the straight-tooth harrow may be necessary for a proper retention of moisture for finishing up the sample. This permits of the wood becoming ripe and hard as it should be to withstand the cold of winter.

Peaches are given only one spraying and this of lime-sulphur so thoroughly applied that every particle of wood left on the trees after pruning is completely coated. Mr. Rittenhouse aims at doing this during March.

Of course, one obvious condition is always understood to form a part in all the requirements for profitable peach culture —one must have peach-producing soil on which to plant in a peach-producing climate, the two being inseparable if best results are to be realized.

One may have the right soil in the right climate, plant only the very best varieties for profit, thoroughly feed, prune, thin, cultivate, etc., and yet lose his total remuneration therefor because of just one neglect or failure—that of leaving out the thorough spraying.

The Raspberry Twig Girdler

Prof. C.J.S. Bethune, O.A.C., Guelph Ont.

"I am sending you a beetle that has attacked our raspberry plants. I never saw it before this year or saw the plants injured in this way. About five or six inches from the end of the sucker are two girdles and then the end dies. So far I can discover no further damage, and in every case it is the suckers which are attacked, not the fruit-bearing canes. These beetles do not seem to work very quickly, nor are there great numbers of them, though they are difficult to find and capture unless actually at work. Can you tell me what they are, and if there is any remedy?—H. I. G. Fergus.

The insect referred to is called the Raspberry Twig Girdler and has been a familiar insect for a long time. The beetle which is long and slender, with black wing covers and yellow thorax, is called the Oberea bipunctata. It bites a girdle around the twig six inches or so from the extremity, and then it turns around and bites another girdle at the distance of its own length from the first. Between the two it makes a little hole and inserts in it an egg; from this there soon hatches out a yellowish maggot, which bores down through the stem and feeds on the pith. The effect of the girdles is to cause an almost immediate wilting of the twig so that the injury is readily observed.

The only effective remedy is to cut off the affected twigs two or three inches below the lower girdle and then to burn them at once so as to prevent the maggots attaining to maturity and providing for an attack next year. Like many other insects, it has its periods of abundance. Last year was a very favorable one for it, its attacks having been noticed in many widely scattered parts of Ontario.

Orange Rust

E.M. Straight, MacDonald College, Que.

Some sections have been badly struck with orange rust this year. Where prevalent it is the worst enemy of the blackberry and raspberry. It is widely distributed and is known in localities all over the continent.

In early spring the under sides of the leaves of blackberries and raspberries often present a red or orange color. In every case it will be found that plants so attacked are much retarded in growth. The leaves are distorted, tend to curl, and take on a languid appearance.

Another stage of the same disease is often overlooked by the casual observer. It precedes the red rust by some weeks, and appears on the upper side of the leaves, and may be found about the time the leaves unfold.

When a plant is once attacked nothing may be done to save it. The mycelium is within the tissue, and lives there from year to year during the life of the plant. Spraying is useless. Remove and burn all affected plants. They are of no value, and a great nuisance to all healthy plants.

Cannot Do Without It

We do not know what we would do without The Canadian Horticulturist, and it gets better with every issue.—W. P. Powe & Son, Sunnyside Gardens, Cainsville, Ont.

Blackberry Leaf, underside covered with rust.

Reasons for Pruning

To give proper form to the tree.

To remove all dead branches and limbs that cross each other.

To thin out the top, so that the tree can be readily sprayed, and the fruit easily picked.

Prune when the tree is dormant to increase wood growth and thus renovate the tree by inducing it to bud and new wood growth.

Pruning Cedars and Raspberries

Prof. W.S. Blair, Macdonald College, Quebec

When is the proper time for pruning or clipping a cedar hedge, and the proper time for cutting back red and black raspberries? Last year after the berries were all picked I took out all old wood and all new except four or five canes. The canes were cut back to about four feet. I cleaned the ground up generally. This was done about August 15th. Several of the hills later showed dead canes turned dark as if blighted. Was it caused by the pruning, or should I have left them alone until spring? Several of my black cap berries are completely gone—no life left. What is the cause?—H. W., Whitby, Ont.

My experience goes to show that it matters little when cedar hedge is pruned in so far as vigor of the hedge is concerned. The aim should be to have a good looking well trimmed hedge for the longest possible time and in order to accomplish this I have followed trimming about the middle to the last of June and again the last of July or early in August. The June pruning is made principally to shorten shoots that are making excessive growth.

The killing of the raspberry canes may have been due to sun injury, Anthracnose, or to root-gall. Where a thick growth has surrounded canes during the early season the canes are as a result susceptible to injury from exposure to direct sunlight. Bright sun for a day or so following the pruning out may cause the injury, on the other hand a few days dark weather following the pruning may result in a gradual hardening of the tissue and no injury result.

The pruning out has a tendency to lessen liability to Anthracnose, although it may have been well established by the date mentioned, and the thinning out has resulted in a more rapid drying out of the cane; the Anthracnose checking the sap flow through the plant. Whether or not Anthracnose is present would be indicated by irregular black blotches along the cane in some cases completely encircling them.

Whether or not root gall is the cause of the trouble with your black cap berries could be determined by digging up the dead plants. If it is it will be indicated by knotty growths on the root.

An Irrigated Orchard

M. Burwell, Grand Forks, B. C.

We grow largely apples, but some plums and pears. Flemish Beauty is our best pear commercially and the fruit is nearly always good size and free from any blemish. We also grow to a limited extent Bartletts. Anjou, Clairgeau, and Clapp.

In plums, we grow Burbank, peach plum, Bradshaw, Yellow Egg, and Pond's Seedling. Pond's Seedling seldom or never rots with us, and it and the peach plum are two of the most profitable.

In apples we grow McIntosh and Wealthy chiefly for fall, both of which do extremely well. For winter we have King, which turned out a fine crop of clean, highly colored and large fruit this year . Grimes Golden did well and was loaded heavily. Wagener also did well, and we have a block of six year olds,, which this year averaged three or four cases to the tree of an excellent sample. In addition we grow Spy, Red Cheek Pippin, Jonathan, and a sprinkling of other varieties.

Amongst those varieties which are now most highly regarded in British Columbia I should place McIntosh Red, Wealthy, Gravenstein, and Cox's Orange for fall; and for winter, Jonathan, Spy, Wagener, Spitzenburg, Grimes Golden, Winesap, and Rome Beauty. It should be said, however, that the behaviour of varieties differs very much in the various districts, a mountainous country such as British Columbia lacking the uniformity of condition which obtains over large sections of other portions of the continent.

Our rainfall here is usually light, and we aim to cultivate very early in the spring and very frequently, and usually irrigate two or three times a season. This is done by the furrow system, the water being run down the furrows for twenty-four or thirty-six hours, and cultivation following as soon after as possible.

The Orchard of J. D. Honsberger, Grand Forks, B. C., Irrigated.
Six carloads of prunes were shipped from this orchard in 1909.

Heading Back Young Trees

R. R. Waddle, Ontario

Finding several growers with the opinion that young trees should not be headed back the first year, or not at all, which in the majority of cases, is a great mistake, I am giving you the results of an experiment which we carried out in Ontario County last season. Probably about two hundred trees were cut back at time of planting. Later in the season the unpruned portion suffered so greatly that we were compelled to prune some of them in order to save the trees, as so many died back further than they should have been cut.

This season, the foliage of the trees, which were cut back at the time of planting, is in the very best condition. The trees stand erect and have made a wonderful root and body growth. The dying trees cut back late in the season are looking equal to those not cut back, which all show a sickly condition.

The remainder which were cut back this spring show the effect of having too heavy a top for the roots. They have been whipped back and forth by the wind, have made no body growth and appear to be a year behind the portion headed back. During the winter the trees suffered very little from freezing back, all portions being equal in this respect. The loss in trees seemed to be sustained by the unpruned portion, which goes to prove trees are better cut back at time of planting.

Pick Over Trees Twice

W. H. Gibson, Newcastle, Ont.

We have always been able to get local help for picking. Thus we get an hour's start of the gang that is sent out by dealers, who have to drive out often from six to twelve miles from town. I make two pickings and with such apples as the Wealthy, go over the trees three times. Pick the top and south side first, when the strength of the tree is turned into what is left ,and they color up. I am satisfied that the improved quality of the apples pays well for the extra expense in picking.

I have a rough shed in each orchard with light roof and boarded up on three sides, which is very convenient for storing barrels and machinery. The drops are all hauled into this shed, when in a few days any bruises will show; then when a wet day comes they are sorted over. The strip of grass under each row saves a great many apples that otherwise would be wasted. I use the ordinary cradle shaped basket for picking and light ladders, and pick entirely from the outside of the tree.

The early varieties are packed in the orchards, the winter varieties put in barrels just as they come from the tree, pressed lightly and led to the storehouse in a spring wagon to prevent bruising. Our co-operative store house will hold nine thousand barrels. The apples are all inspected at the station they are shipped from. At Newcastle the inspector comes twice a week through the season. The Newcastle association has not had a bad mark against it in four years.

I prefer a small association to a large one as it is easier for the growers to get together, and there is no danger of friction. I am growing both cherries and pears extensively, and have found them both profitable. In cherries the Early Richmond and Montmorency give best results. In pears, fifty per cent. are Bartlett, the balance are Clairgeau, Anjou, Duchess and Wilmot. The Wilmot is a native seedling, medium sized, very profitable and hardy, but scarcely as fine in quality as the Bartlett. Dr. Farncomb had two trees of this variety, from which he sold five barrels at eight dollars per barrel. The pears from this district come in just after those of the Niagara peninsula, thus missing the usual glut, and realized last season from seven dollars to ten dollars a barrel.

Peach Trees From Stones

Miss A. Moyle, Richmond Hill, Ont.

In the February issue of The Canadian Horticulturist, there appeared a picture of a peach tree grown from a pit planted by Mrs. R. L. Brereton, of Toronto. This statement was made: "As a rule only one out of a hundred seedlings turn out worth growing."

When King Edward, as Prince of Wales, was in Toronto, my mother was visiting at her old home there. While waiting to see the prince she bought a dozen peaches. The pits were saved and taken home to the farm, which is situated on the gravel road between Paris and Brantford. My father, the late Mr. Henry Moyle, of Paris, planted them in the garden. They all grew. The trees were never sprayed or pruned, but year after year they were loaded with the choicest fruit, similar to the original peaches. The branches had to be supported with props to prevent their breaking off. They were a yellow peach, firm flesh, very juicy, free stone, and the skin had a beautiful bloom.

One year my father picked eleven peaches, measuring seven by nine inches, and took them to the Toronto Exhibition. They were "highly recommended," but as there was not a full dozen they did not receive a prize. All the pits planted produced the same peach.

I remember one day after coming from school, eating six peaches and putting the stones in the ground in the back yard on the south side of the house. In the spring six trees made their appearance. Father said, "Bless the child, why did you put them there?" because they were in a very inconvenient place. I replied, because I wanted "to see them grow." They were allowed to remain; many a basket of luscious fruit was picked from them.

If I remember correctly, the trees did not bear till they were six years old. The original twelve trees were so large and strong, we children of twelve and fourteen years of age climbed up and out on the branches to pick the peaches. They were not forbidden fruit. Many baskets of choice fruit were given to friends with the instruction "be sure to plant the stones."

IS EXPERIMENTING

So convinced am I that the finest peaches can be grown from the stones, I am experimenting at our summer home at Richmond Hill, Ont. Last September the parings and stones from several baskets of choice Crawford peaches bought in Toronto, were buried in the kitchen garden, as we had no other way of disposing of the garbage. This year a number of peach trees came up. Some are where they can remain, while others are too close and will need to be transplanted. I am an advocate of fall planting and will have them moved in November, and watch the result with interest. We are told "it is too far north here, the peaches will not ripen," but we have succeeded in doing a number of things people said could not be done, and it is worth trying.

I have successfully packed my apples in boxes for a number of years. The only way to do this profitably is to produce at least ninety per cent. number one.—Earland Lee, President Stoney Creek Farmers' Institute.

Remarks by Fruit Growers

Whenever a large limb is sawed from a tree the wound should be at once covered with wax or thick paint.

Neglected fruit trees are not worth the land they occupy. They are an eyesore, and when pest infested are a positive menace to the neighborhood.

Peach trees are headed at about eighteen inches from the ground and are not allowed to get over ten feet high. In order to hold them there they prefer cutting back in the summer.—J. W. Smith & Sons, Winona.

In my opinion fruit growers will have to change their ideas of pruning in order to meet the changed conditions. The old idea of thinning out the centre of the trees to let the sunlight in has resulted in many orchards, apple especially, becoming too tall for the care that a tree now has to receive.—J. O. Duke, Ruthven, Ont.

In the spring of 1910 a blight attacked many of the apple trees in Huron County. This, with other causes, led to the lightest crop of apples known in the county for twenty years. It was noticed that from the trees that were sprayed nearly all produced some apples and seemed to get over the effects of the blight sooner than the unsprayed trees. —R. R. Sloan, Porter's Hill, Ontario.

A Well Managed Orchard that is Productive and Profitable

Many hundreds of apple orchards in Ontario that have been neglected for years have this year been pruned, sprayed and cultivated. There are thousands more which only require the same treatment to realize handsome returns for their owners. The fine orchard here shown is owned by Mr. W. V. Hopkins, Burlington, Ont. It is only one of many in that splendid fruit district.

Floral Notes For August

Wm. Hunt, O. A. C., Guelph

DAHLIAS must be given plenty of water at the roots during the hot August weather. The growth should also be sprayed every evening with clear water. A mulch of about an inch in depth of partly rotted barnyard manure placed on the surface of the ground, about twelve or fifteen inches all around the plant will help them. About the same quantity of lawn grass or short grass clippings spread around the plants will also benefit them, and conserve the moisture. The mulch should not be placed too close to the stem of the plant, an inch or two from it is best.

An application of liquid manure to the roots of the dahlias once a week will also benefit them at this time when the buds are swelling. Apply the liquid manure when the soil is moist, not when it is very dry or when it is very wet. When the soil is dry the plant cells and tissues are too hard and contracted to get the best results, and when the soil is wet the plants are already charged with sufficient moisture. The best time to apply liquid fertilizers is when soil conditions are of a normal nature.

The seepage from barnyard manure or from stables, diluted with an equal quantity of water, makes a good liquid fertilizer for almost all out-door plants. A pailful of fresh cow manure put into ten or twelve gallons of water in a tub, diluted with half water, is one of the best liquid fertilizers for garden plants generally. An application once a week will invigorate all growing garden plants. One ounce of nitrate of soda dissolved in two gallons of water is also a good fertilizer for all garden plants, or for window boxes. Window box plants require a little fertilizer at this time, as the soil usually becomes exhausted toward the end of the season.

Bonora is one of the best commercial fertilizers sold for pot plants or for window boxes.

GLADIOLI

Keep the seed heads of the centre or terminal spike of gladioli cut out when the flowers have become withered. If seed heads are allowed to develop it will lessen the growth of the young corm or bulb, as well as retarding or perhaps preventing altogether the lateral spikes of bloom from developing on the side of the main stem as they often do.

If the spikes of gladioli are cut when one or two flowers have opened, the balance will develop if the spike is placed in a vase of water. The water should be changed every day or two, and about half an inch of the bottom of the stem cut off when the water is changed.

Hyacinth, tulip and crocus bulbs that were lifted from the flower beds in early June or when the summer decorative plants such as coleus, geranium and canna, were planted, should be lifted early in August from their temporary quarters where they have been heeled in to ripen off. The bulbs should be laid in shallow boxes or spread out on the ground for a few days after digging to dry, when they can be placed away in a cool room or cellar until planting time in October. Dig the bulbs that have been heeled in now at once, and dry them.

Towards the end of August or early in September, many of the early flowering varieties will require disbudding. This is done by picking off some of the smaller buds, leaving two or three of the largest and best buds only at the top of each shoot or branch. By removing or thinning out some of the buds, larger flowers are produced from the buds left, and fewer of them. If very large blooms are wanted, leave only one large, perfect bud on each stem, usually the crown or topmost bud being left to flower. The Pompon or small flowering types do not require disbudding. The Pompons make good window plants as they are usually dwarf and compact growing, and very free flowering.

Plants That Show the Effect of Disbudding

The plant on the left was not disbudded at all. The centre plant was partly disbudded, two or three buds being left on each shoot or branch. Only the crown bud was left on each branch of the plant on the right.

About the middle of the month is the best time to take cuttings of coleus, geranium, iresine, ageratum, pelargonium, and so forth. Set the cuttings in sand or half sand and half soil, in shallow, well-drained boxes. Under a tree or on the north side of a fence or building, is a good position in which to root cuttings in the hot weather.

Chrysanthemums that have been planted in the ground during the summer should be dug up late in August and potted into good rich soil in large, well drained pots. Pack the soil firmly around the roots. Firm potting is an important point in potting these plants. A short piece of an old broom handle pointed a little at one end, makes a good "potting stick" for this purpose.

Water the plants thoroughly at the roots at once after potting. Stand the plants in partial shade away from the hot sun for a day or two. Keep the roots moist but not too wet for a week or so. Sprinkle the top growth every day until the plants are in flower. Keep the plants out of doors as long as they are safe from frost, usually until the end of September or later.

Save seeds of all desirable varieties of plants. Dry the seeds well before putting them away for the winter. Save seed only from the best type of flowers. Label the best blooms when the plants are in flower so as to secure best types.

If large plants of pansies are wanted for early spring flowering, about the middle of August is the best time to sow the seed. Sow the seed in a shallow, well-drained box in soil four parts rich loamy potting soil, one part leaf soil, one part sand. Transplant them into a cold frame or a nursery bed in soil with two parts more loam than before. A little coarse garden rubbish should be thrown over the plants about the first week in November, and a light sprinkle of strawy manure or leaves over the coarse rubbish.

Seed sown now should produce good plants that will flower in April or May

The Summer Care of House Plants

E. F. Collins, Toronto, Ont.

THE care of such plants as are usually found in the home, is sometimes a source of much worry to the amateur gardener or housewife, especially when the said housewife wishes to go away for one or two weeks-end excursions. It is then either a choice of letting the plants die or getting a neighbor to take care of them.

Many plants will keep moist long enough to go even a week without attention if treated in the right way. In the case of the ficus or rubber plant, aspidistras or ferns, dig a hole in some shady spot in the back garden, plunge the pot into the ground a little below the surface, pack the soil lightly around, and then thoroughly saturate the plants and surrounding soil with water. Should the water drain away too readily, place three or four inches of decayed leaves or moss over the top, and around the plant, close to the stem, and you will find that it will not need watering for a week or more. All palms can be treated in the same way. In fact, they will be greatly benefited by the outside treatment.

RE-POTTING

If any of the plants mentioned are pot-bound or full of roots, repot them into pots two sizes larger. That is, if they are in a four inch pot, place them in a six inch pot, or from a six inch into an eight inch, and so on. In this way there is no danger of over-potting. When re-potting, be sure to use plenty of drainage in your pots. Place one piece of crock over the hole, then about one-half inch depth of small broken pieces or clean cinder, and then a thin layer of moss or rough pieces of leaf soil. Then your pot is ready for the plants. Be sure to pot fairly firmly by ramming down the soil with a piece of stick so as to leave no vacant space between the ball of soil.

All the begonias usually found in the house can be treated in this way except that in potting use more decayed leaves and do not make the soil quite so firm as for palms or rubber plants.

Many plants on balconies and verandahs suffer from lack of moisture by the pots being exposed to the drying winds. This can be avoided by placing the pots into larger pots, vases, jardinieres or rustic stands, and packing the space between with spagrum moss, and then keeping it thoroughly saturated with water.

GIVE SOME FERTILIZER

Plants require some stimulant during the summer, when they should be growing. If they are not re-potted during the season they ought to have some fertilizer twice a week, such as a top dressing of sheep or cow manure, and then frequent watering. Clay fertilizer dusted on the surface and then watered is most beneficial. The amateur gardener should always remember that during the hot dry weather the tax on the strength of plants is like it is on the human system. Evaporation is so rapid through the lungs of plant life that unless plenty of moisture and food can constantly be supplied through the roots, plants become stunted, they show a poor color and growth and eventually die.

How to Destroy Them

The common little red ant, which makes tiny hills on our walks and in the grass, can be destroyed by pouring a little gasoline in each hole. Half a teacupful to a teacupful will suffice for from three to six holes. Do not be afraid to use plenty of gasoline, in order to reach the queen or queens which lay the eggs. This liquid, however, will kill grass or plants where it comes in direct contact with them.

The large mounds out of doors, each of which is occupied by hundreds of ants, can be easily treated with bisulphide of carbon Make eight or ten holes with a cane or croquet stick, about eight inches deep, in each mound. Into each hole pour a good tablespoonful of bisulphide of carbon, closing each hole with earth, and then throw a couple of wet burlap sacks over the hill, leaving them over night. One might have to do this twice, or until the queens are killed.

While ants, when seen climbing up apple trees, or shrubbery and plants, generally do not directly injure the plants, since they are for the most part after the lice, which give up to them in response to their caresses, some honey dew, of which ants are very fond, nevertheless the black ant sometimes girdles and kills shrubs like the lilac and snowball. When ants

Magnolia Soulangeana in Bloom at St. Catharines

This beautiful tree stands in the grounds of Mr. E. A. Lancaster, M.P., St. Catharines. Some idea of its size may be obtained by comparing it with the photograph of Mr. Lancaster, Jr., who stands beside it and who is six feet tall. This Magnolia was planted by Mr. G. W. Hodgetts, Vice President of the Horticultural Society, who formerly owned the property.

are found at this work, we first have recourse to strong tobacco water to see whether we can drive them away. If they still persist in eating the bark, we advise uncovering the crown and larger roots, mixing up arsenate of lead with a little water, and applying it as thick whitewash to these parts. Arsenate of lead is a poison, which, however, applied in that way, would not injure the bush.

Everybody's Flower

By Mrs. Annie L. Jack, Chateauguay Basin, Que.

The peony has been called "Everybody's Flower," being of easy culture, and able to adapt itself to any soil and situation, while having the reputation of being immune from insect pests that destroy so many of our garden treasures. It is par excellence the flower for the amateur, and if selected with a view to lengthening the period of blossoming, will continue to give flowers from the first red "Piny Rose" of our grandmother's day, full of tonic scent, and opening in May, to the latest of the beauties that remain sometimes after Dominion Day.

Enduring neglect wtihout repining, the plant responds to good culture and enjoys being nurtured in good loamy soil that will show an increase in the size of the flower. Some of the newer varieties are very fragrant, which is an added charm, and a peony fancier will tell you that if you inhale their perfume with closed eyes, it is easy to imagine that it is a Glorie de Dijon rose, while a pale pink beauty called "Lyde," has a more powerful, yet delicate scent, similar to pure rose attar, resembling the essence that has its home in the gardens of Persia.

The blossoms of a new variety called "Summer Day," remind one of a magnificent La Marque rose, with the same soft yellow tint in the centre that shades into white.

There is a lovely peony called "Arethusa," that is a revelation to those who only know the red, pink and white, for it has outer petals of peach color shading to delicate lilac and creamy white, and one of the latest flowerings is a delicate lavender, flesh colored, named "Lady Gwendolin Cecil." There is no place in the garden where herbaceous peonies appear to such advantage as in the shrubbery border, planted in masses, the fine leafage, healthy and vigorous, being very satisfactory.

There is a beauty in this plant even in April when the red shafts come through the ground, and grow so fast that they become budded foliage before we are aware of their haste. It is very easy going, and yet dislikes interference, being satisfied with an annual mulching, and watering in a dry time, for it is a thirsty plant, in a drought, and the buds may refuse to fulfil their promise through lack of water. But if borders are dug and planted deep this is not so likely to happen, and a plantation of peonies is so adaptable that in bed or border the ground may be filled with scarlet tulips or golden daffodils that will finish blooming early and not intrude.

The month of August or early September, is best for dividing and transplanting this perennial, after the season of flowering is past. However small the plant, so long as it has a sprout or eye, it will grow, but the smaller the plant the slower to blossom. Being impatient of removal they should be left in their glory to come to perfection, as they resent indiscriminate changes and hacking pieces from the roots.

There is no question of hardiness and for this reason it is especially suited to our climate, "P." officinalis" being a native of the Alps, and "P. albiflora" of Siberia, and from these two the present race of garden species sprung.

The new single peonies are very unlike those we know so well, but for beauty they hold their own, displaying a tuft of golden anthers set in the centre of a flower that may easily be mistaken for an immense single rose.

There is nothing more effective than an arrangement of one variety of peony in a less frequented corner of the lawn and they will thrive in such a situation if given a mulch of coarse manure in the autumn that will furnish nutriment in the spring, and winter protection.

Squash Vine Growing on Fence. Garden of C. B. Hamilton, Toronto, Ont.

Continuity of Bloom

A. J. Elliott, Aylmer, Ont.

After reading the article in the July issue of The Canadian Horticulturist describing Mr. R. B. Whyte's garden at Ottawa, one phrase in it caught me, and I have taken it for the caption of these few thoughts. Continuity of bloom has caused many a florist, amateur and otherwise, many serious thoughts and arriving at the desired end has been accomplished only after many a brain twist. This question has put more would-be gardeners out of business through disgust over the failure of their efforts, than possibly any other one thing. I have gathered many a good thought from the columns of The Canadian Horticulturist, and if I can assist through past experiences in helping other lovers of flowers, I shall be happy.

To me a perennial border is an absolute necessity for a home garden. I take the most pleasure out of it, and I grow vegetables and annuals to my heart's content.

In April my bulbs begin to appear, and right welcome they are. Chionodoxia, snowdrops, crocuses, jonquils, narcissus, hyacinths and tulips show a riot of bloom that lasts until the first of June. Then follow in quick succession sweet rocket, Sweet William, pansies, buttercup, columbine, perennial poppies, irises, peonies, ismenes, foxgloves, roses and the various lilies.

This brings us up to about the first week in July. In the perennial border this is the crucial time. All I have in full bloom now are the hollyhocks, Shasta daisies, galliardias, and platycodons. Happy is the man who hath his quiver full of them, for by a judicious arrangement of these flowers distributed through his border he can counteract to a measurable extent the gloom cast over the border by the passing of the grand old lilies, both white and colored. With these four he can bridge the short space of time till the hibiscus, perennial phlox, golden glow, caliopsis, the late lilies and red-hot poker arrive.

In the interstices in the border I sow or plant as thickly as desired gladiolus, phlox Drummondi, eschscholtzia, Rose of Sharon and zinnias, which will make

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As long as people depend upon the cheap five cent packets of mixed flower seeds and bargain counter lots of bulbs for their supply, their flower gardens will remain extremely common.—D. W. Marden, Pilot Mound, Man.

their presence felt in the continuity of bloom.

This programme gives me flowers the season through. If any one will follow out this course they will have no reason to complain of the lack of bloom. Aside from this of course I have my annuals, but my heading refers more especially to perennials.

Florists will sometimes get disappointed in experimenting with new flowers. This year I tried the arctotis. I will not grow it again. With me it is no good. Its flowers and foliage are too much of the same color, and its length of blossom is ridiculously short. It is open when I get up and at noon it shuts up, and does not open until the next morning. We have no use for it.

Hedges

Barlow Cumberland, Port Hope

Planters of hedges and of Spy apples are akin. They are kindly people who "do unto others as they would be done by." Hedges are not for a day, nor for a year, but are a permanent beauty and adornment. They evidence love of home.

Cedar seems best adapted to our latitude. Being born of swampy ground it needs moisture. The hedge represented in the accompanying illustration is mulched every other year with stable manure, and in very dry seasons, occasionally watered at the roots.

Cedar hedges should be trimmed in cone form, not straight sided, but wider at bottom and tapering to the top — the natural form of a single tree, but trimmed closer. The tops must not be left flat, else the snow will lodge and injure the fronds with ice.

A privet hedge is of quicker growth, but is liable to frost and not so permanent. In its later years, just when its presence has become most accustomed, it may get ragged and may have to be pulled up.

A speedy and convenient hedge effect can be produced by posts, painted green, planted six feet apart, with strong wire fence four feet high, between. Plant Virginia Creepers at foot of each post, and at two feet centres between.

An Artistic Gate to Kitchen Garden

Cedar hedge at Dunnain, the residence of Mr. Barlow Cumberland, Port Hope, Ont.

The Back Garden of T. D. Dockray, Toronto, Ont.

Flowers for Winter Flowering

Wm. Hunt, Ont. Agricultural College, Guelph, Ont.

House and window plants, such as palms, Ficus elastica (Rubber Plant), Cordylines, or Asparagus plumosa (sometimes wrongly called Asparagus Fern), Asparagus Sprengerii, Boston Ferns, and similar plants, should be re-potted about the end of August if the pots have become full of roots and the soil exhausted. Nearly an inch of drainage matter, such as broken flower pots, coarse gravel, coal cinders or lump charcoal, should be placed in the bottom of a six or seven inch pot.

A good potting soil for these plants can be made by mixing one part fine clean pit sand, one part leaf mould or black soil from the bush, one part dry cow manure powdered fine, and five or six parts of light loamy soil. Soil taken from loamy soil that has been allowed to rot, with one-fourth part of dry cow manure, one part sand, and one part leaf mould, would be still better for the plants. In repotting about one-third of the old soil should be removed from around the roots.

After potting, water the plants well once, then keep the soil only just moist until growth has commenced. Shade the plants for a week after repotting, and sprinkle overhead with water daily. Stand them in partial shade in hot weather. Take the plants into the house after the first week in September.

Bulb roots in the mixed or perennial border or where planted among shrubs for permanent occupation, do not need to be moved or transplanted until the clumps have become matted and the flowers they produce small and poor. It is best to dig, divide, and transplant these clumps early in August, before they start to root much and grow. Do not leave them until bulb planting time in October. Bulbs do not like to be disturbed after the roots have well started, hence the necessity of digging the permanent kinds up so early. The seed heads should be cut off all bulbs down to the first leaf as soon as the flowers have dropped. This applies particularly to tulips and hyacinths. Scillas and chionodoxa are often let go to seed as they self-seed and produce lots of seedling plants in that way.

Prune in summer to check the growth of the tree and throw the strength of the tree into producing fruit, thus increasing not only the yield but also the quality of the fruit.

Imantophyllum Plant (Clivia) in Summer Time

This is an easily grown plant, the leaves of which should be kept fresh and green during the winter by holding at a temperature of thirty-five or forty degrees in a cool room or cellar. The soil should be kept slightly dampened as it is a moisture living plant.

Landscape Gardening

Linus Woolverton, Grimsby, Ont.

Landscape gardening is a comparatively new profession in Canada. Quite recently the teaching of the main principles of the art have been undertaken at the Ontario Agricultural College at Guelph, and two experts have arisen, one in Ontario and another in Quebec, but these have appeared almost before the public were prepared for them. The beautiful parks of Great Britain, of Germany, and of France, speak volumes in praise of the landscape gardeners who have made them famous, and the charming gardens, parks and boulevards of Boston, Massachusetts are an everlasting credit to the memory of Frederick Law Olvestead.

Prof. Sargeant of Boston, speaks very decidedly regarding the important field of study which is covered by this interesting art. "Parks and city squares," he says, "cemeteries and large country places, must be laid out and planted by one who has studied design, and the effects and needs of trees, shrubs and flowers. Small country places and even villa plots, if they are to be made the most of, must be entrusted, too, to competent hands."

THE FIRST TO CONSULT

Professor Sargeant further asserts that the landscape architect should be consulted even before the house architect for the selection of the most effective site, and for suggestions regarding the architectural design best suited to the locality. "Send for him," he says, "first of all, even though it is a villa on an acre of ground that you mean to build; ask him where your house had better stand, where is the best place for the main entrance, the piazzas, the stable, the gates, the dog-house, even; if the grounds are larger, ask him what architectural style seems to him most fitting, where on the plan the chief rooms should stand, what views their windows should command; then send for your architect, let them devise and decide together and work together until the work is done. In this way you will run a far better chance of getting a good house and a good place than if they had worked separately—the architect building his house without knowing where it might best be placed, or how best surrounded; and the landscape gardener coming in afterwards to find, perhaps, that no chance was left him to assist the house, or to do his own work well."

I commend to the readers of The Canadian Horticulturist these remarks of Prof. Sargeant; they are particularly apropos just now in Canada, when so much interest in the beautifying of towns, villages and home grounds is being taken by our local horticultural societies.

A Geranium Bed on the Grounds of the Presbyterian Church, Goderich, Ont.

Many churches might greatly improve their grounds by planting more flowers. The bed here shown is composed of scarlet geraniums in the centre bordered by silver-leafed geraniums, with an outer border of the carpet plant. This bed was planted by Mr. D. S. Stoddart, who states that he has found geraniums most successful plants for such beds owing to their well-known hardiness and their prolonged season.

Old Country Flower Beds

E. F. Collins, Toronto

Last summer the writer saw many beautiful color combinations in Hampton Court Palace Gardens, not that the plants used were costly or rare, but the effect was gained by the coloring and point of view from which the visitors could see them. There were two beds which were beautiful beyond anything like the idea that I can convey in writing. First, a square shaped bed with the ends concaved, filled with a groundwork of equal numbers of plants of sweet alyssum and dwarf blue lobelia, with dot plants about twenty inches each way of a white and pink tinted tuberous begonia, and above that a few dot plants of eulalia Japonica variegata, standing up two feet high, the effect was, as I said, truly beautiful.

The second bed, which was placed away back from the nearest point of view, and had a background of trees and shrubs and extensive buildings above that, was a combination of salvia Zurich, with tall dot plants of Gnaphalium, tied loosely to one centre stake, and the bed edged with the golden fuchsia, Sunray, rich and gorgeous in the position where it was, but if placed close under the eye or near brick walls, it would have looked crude and vulgar. Other beds were formed of blue violas, with dot plants of heliotrope, soft and pleasing to the eye, while the angles of walls and terraces were occupied with medium sized carpet beds in simple design, and the flatness relieved by the liberal use of various grasses. I consider that color arrangement and position are the two most important subjects to be considered by gardeners. Much can be done with poor material, if these two important points are considered.

"Sweet Lavender"

A. H Ewing, Woodstock, Ont.

Everyone from the Old Country, whether horticulturally inclined or not, knows the Lavender. Even Londoners remember the "Sweet Lavender" cry of the peddlers, and have probably indulged their olfactory organs by buying a "pen'orth." Every garden here might have a plant of this sweetest smelling herb by planting it in some situation where it would be well covered with snow during the winter and protected from the strong rays during the earliest days of spring. For the last four years the writer has grown some outdoors which have pulled through the winter with more or less success and it is safe to say that no plants in the garden have given so much pleasure or brought up so many pleasant remembrances of days gone by to the many visitors who frequent the place.

The Lavender flowers have the most refined scent in the garden and the leaves, too, have a very refreshing perfume. Altogether it is the sweetest, quietest and most grand-motherly plant that grows.

Diseases of Celery

A. McInnis, London, Ont.

There are several diseases which attack celery, but only a few may be mentioned. "Damping" is caused by a fungus which follows careless watering while the plants are very small. It attacks the stems of the seedlings at the point where they emerge from the soil, bringing about decay. This disease may be avoided by starting the plants in trays in a shallow trough containing about one inch of water, allowing the water to enter through the drainage holes in the bottom of the trays. In this way the surface of the soil will remain slightly dry, while the roots will receive plenty of moisture. It will always be necessary to water very carefully and to avoid extremes of drought and moisture, also to provide plenty of heat and ventilation. During extremely dry weather it is best to prevent too rapid evaporation by partial shading with lath screens of thin muslin.

The disease known as "blight" or "leaf spot," is caused by a fungus. It is very prevalent and destructive. It makes its appearance at any time, usually after the plants have been set in the open field. The first visible indication of the disease is in the form of grayish spots upon the leaves, changing to a brown or burned appearance in a day or two. If conditions continue suitable to the development of the disease, it will spread to all parts of the plant, the stems will droop and the entire plant assume the appearance of having been scalded. The heart of the plant will continue to throw up new leaves, but when once badly infected, it never sufficiently overcomes the disease to produce a marketable product. When this disease makes it appearance, it is already too late to attempt to eradicate it, as much of the injury has been done before the existence of blight is perceptible.

CELERY BLIGHT

Celery blight generally appears during or immediately after a period of sultry weather, when the atmosphere is filled with moisture and the nights warm Bright sunshine and a clear atmosphere during the day, with cool nights, are favorable for the prevention and control of blight. Any check in growth will so weaken the plants that they are liable to be attacked by disease. On the other hand, if the plants can be kept in a vigorous growing condition during unfavorable periods, they will be in a much better condition to withstand disease. Owing to close selection and constant inbreeding, the self-branching varieties have become constitutionally weakened, and suffer more from disease than the hardier green sorts.

Under favorable conditions spraying has in many instances proved beneficial in checking blight. Severe loss from blight is noted only where large quantities of celery are grown and handled together. Growers will not be greatly troubled if the plants are kept in a vigorous condition throughout the growing period.

This may be greatly helped by partly shading the plants up to the time when they are set out into the open field and by planting the crop on land that is rich enough to keep up a rapid and uninterrupted growth The most satisfactory shade for the plant bed consists of a screen made of plastering laths. The size of an ordinary hot bed sash is the most convenient for these screens.

Growing Tomatoes

A. H. MacLennan, B. S. A.

When growing tomatoes in the greenhouse pollination should be carefully attended to, as insufficient pollination causes misshapen fruit. When the flower is mature the stamens are the longest. But as the flower opens to be pollinized, the pistil gradually elongates until it is much longer. Being longer, and the stigma larger than the style, it tends to ward off pollen. Pollen grains adhere and germinate easily. The more pollen, the more perfectly shaped fruit. Pollinization is effected by tapping flowers, jarring uprights, or using a brush. Using a spoon and stick and tapping carefully each flower is the best method. It should be done at least every other day. The pollen is most abundant on bright days. The plants and atmosphere must be dry.

DISEASES

Leaf blight or scab (Cladosporum fulvum) appears as rusty brown spots on the under surface of the leaf. It is caused by too damp atmosphere. Give better ventilation and allow less water on the leaves. As soon as noticed, use Bordeaux mixture, spraying thoroughly both sides of the leaf. If the disease is well established, it is best to remove the crop, then sterilize or renew the soil.

Blossom End or Black Rot is caused by insufficient moisture at roots as the plant matures. The plant has become dry and when watered the sudden filling of the cells of the fruit causes the skin to burst and allows the entrance of bacteria. Mildew appears as purple or brown spots on the leaf, which wilts where attacked.

The best remedy is to vaporize sulphur in the house.

STERILIZATION

There are two methods of sterilizing the soil—steaming and formalin. If you have sub-irrigation, you can simply connect your steam pipes by hose to the upright and force steam through the soil until it rises in a cloud. Another method is to make a pan, which is forced down over the soil and steam connections made on top. The steam is then turned on at a pressure of twenty pounds for twenty minutes.

To use formalin, the following is the strength: Eight pounds formalin to one gallon water; one and a half quarts of mixture to fifty gallons of water. Then use one gallon to every square foot of surface and leave for ten days. Then dig over and plant.

Possibilities of a Greenhouse

I have a small greenhouse, 16 x 35 feet. It is heated by hot water. I want to run it this winter, and as I am only an amateur I would like to know what may be grown in it most profitably and what are the possibilities of such a house. I have four acres of land one and one-half miles from what is considered a good market, but as I have to hire a man to keep a horse, I find the expense greater than the returns and would appreciate a few practical suggestions? —Mrs. Amateur, Ontario.

It is very difficult to reply to a question of this kind where so many factors have a bearing on the matter. In the first place, the small greenhouse mentioned would not be sufficient to occupy one person's time and give remunerative results. As a side line to some other business it might be useful. As to what could be grown in the house mentioned, a great deal would depend upon the market for the produce. That could be decided only by someone who knows the requirements of the place.

To go into the plant and cut flower business to make any kind of success it would require at least three or four houses of the capacity of the one mentioned, as there is not room enough for a collection of plants and flowers for a general florist's stock. If there is a good market for cut carnations, these could be grown. It would be necessary at this late season of the year to purchase plants from some large firm growing these flowers, such as the John Dunlop Co., Toronto, Gammage & Co., London, or other large firms, as it is too late now to start the plants for winter flowering. Field grown plants could be secured and planted about the end of August. It is too late to think of growing Chrysanthemums for the present season. Lettuce, radishes, and onions could be grown during winter. All of these, if properly handled, are good paying crops.

As to the four acres of land mentioned, it is a useful property to have in connection with greenhouses; but as you say you cannot run it to make returns, it would be better to dispose of it, although if properly run and suitable for a market garden it should work in very nicely for early vegetables from plants raised in the greenhouse in early spring. Much depends, however, upon the ability of the person running a greenhouse or garden as to the success attained.

The Skinner System of Irrigation

E. E. Adams, Leamington, Ont.

I have been using the Skinner system of irrigation on some two and a quarter acres of my ground for about a year, and have obtained very satisfactory results. Last year it gave me great satisfaction with my cabbage during a drought when rains were few. The cost of installing the system was about $550.

I have not as yet enough water supply to obtain the best results, but with what I have I am able to carry over through a dry time a considerable quantity of truck, and thereby increase the profits. I use a gasoline engine and pump combined on one base for pumping the water through the pipes. It goes out of small nozzles with a hole in them about the size of a pin, and with forty pounds of pressure the water is broken into a fine mist which, falling on the soil does not pack it as rains do.

IT IS USED IN FLORIDA

Before installing the system, I looked over considerable ground at Tampa and Bradentown, Florida, where it was being used. I have since looked over some ground at Grand Rapids, Michigan, where lettuce was being grown. In Florida, I found twenty acres of celery in one block covered by this system, and when the water was being applied (after four o'clock in the afternoon) the sight was grand. We could see just about what was going to happen to that crop. Almost no rain falls in Florida during January and February when celery, lettuce and other truck crops are growing, and when they need large quantities of water. Some of the finest celery grown in Florida comes from Manatee County, near Bradentown.

I found in Florida that the system is installed under contract to firms who make a business of selling systems. The cost is said to be about three hundred dollars per acre, which is too much money. My plan was to purchase all my galvanized pipe at wholesale, and also all valves and other fixtures, except some patent unions and nozzles which must be procured from the manufacturers. These nozzles are very small, having a small hole, about the size of a pin, so that under the pressure the water is broken up very fine in passing out. I purchased a combined gasoline engine and pump at a cost of two hundred dollars, and galvanized pipes, three-quarter, one inch, one and one-quarter and two and a half inches, and fittings.

WATER IS PUMPED

Not having a running stream or lake to draw water from, I am forced to pump from a deep well to a storage tank, containing nine thousand gallons, which cost about eighty dollars set up, made of southern cypress. Water is pumped into this tank by a windmill, but I cannot say that this is the best method, as the wind does not always blow. In order to overcome this, one should have a small engine to attach to the pump when no wind is blowing, in order to keep the water coming into the storage tank for emergency use. The water is forced into a two and a half inch main, which runs down the centre of my field. Laterals are taken from the main and can be placed fifty-four feet apart. With the patent union previously mentioned, the lateral pipes may be turned to throw water—say, east or west—twenty-seven feet, thus covering the ground completely by turning to any desired angle. The nozzles are placed in the lateral pipes about four feet apart. My system has mains running east and west, with laterals running north and south. It is used to water early cabbage, cucumbers, peppers, and this season some Gibraltar onions. The results are most marked. When we have a dry spell we turn on the water, and one watering in some instances is all that is necessary, as we have at times quite sufficient rain. For cucumbers we must have water at least twice a week, as the crop is forced, in order to have cucumbers when the price is high, which is usually three weeks in July, although this year we shipped from the ground during the last week in June.

This system should be used by every vegetable or small fruit grower. Take strawberries, for instance, this season in some parts of Essex county, as well as in the Niagara district, where owing to a dry spell in May the crop was practically ruined, it would have been a great thing to have had a rain to apply when needed. Many berry growers this season alone lost enough on their berry crops to pay for a small system. For vegetables we must have water, and plenty of it, when cabbage are heading, when roots are making also we must have it, in order to get the best results from our labor.

The Irrigation System of Mr. E. E. Adams of Leamington as it appears in his Pepper Field

Mr. Adams, whose system of irrigation is described in the adjoining article, grows about one and one-quarter acres of green and red peppers each season. An illustration of his crop last season is here shown. The peppers are sold mostly in Ontario, Quebec and New Brunswick. Mr. Adams finds a market for his product by sending out circulars containing quotations of the different goods he has to offer. As yet he has never grown enough to supply his trade.

Fertilizers for Potatoes

Does it pay to use fertilizers for potatoes, and if so, how much and what analysis? The above questions are frequently asked, and the answer is more easily given by learning what is used in the great potato growing districts.

On Long Island there is a co-operative association of farmers who buy about 6,000 tons of fertilizer, and the analysis they demand is 5-8-8; the fact that they grow very largely early potatoes accounts for the high per cent. of nitrogen in this mixture. This is also true of the truckers of the Norfolk district, who grow potatoes for the early New York market, and who use as a standard a 7-7-7—seven of nitrogen, seven of phosphoric acid, and seven of potash.

The Ohio Experiment Station in some recent fertilizer experiments obtained the largest yield from an application of 160 pounds of acid phosphate, 100 pounds muriate of potash and 80 pounds of nitrate of soda. This material would be equal to about 340 pounds of a 4n.-6½p.-15k. goods, which is about the same analysis as Mr. T. E. Martin, West Rush, used, 1,800 pounds to the acre, to produce his yield of an average of 418 bushels on 18 acres—a yield which has probably never been equalled.

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OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

INVESTIGATION REQUIRED

The suggestion that has been advanced on different occasions that arrangements might readily be made to irrigate from Lake Erie and the Welland Canal thousands of acres of the low lying lands in the Niagara District suitable for fruit growing but not now used for that purpose, has been endorsed recently by the Toronto Globe. In this connection the Globe says:

"The fruit growers of the peninsula should "organize and present to the Dominion "Government a well-considered proposal to "make the new Welland Canal, soon to be "built, an irrigation canal as well as one "for navigation. Tens of thousands of "acres within reach of the canal could be "doubled in value by the use of irrigation "ditches, and the fruit industry, instead of "being constantly subject to the risk of "failure from drought, could be placed upon "a basis of reasonable certainty. What "the Moors made of Granada and the Egyp-"tians of the Delta of the Nile the Niagara "fruit growers could make of their won-"derfully rich and favored region by the "wise use of the Lake Erie irrigation "dam."

The fruit growers of the peninsula will serve their own best interests if they follow the Globe's advice. They might well, also, invoke the assistance of the Ontario government. What is first required is a careful examination by experts of the possibilities of the whole scheme. This should be undertaken by the provincial government. In British Columbia during the past month the local government brought from Oregon an expert in irrigation practises, and had him visit different sections of the province and consult with and advise the growers in regard to irrigation possibilities and methods. The Ontario government should not wait to be urged to undertake similar work in the Niagara District, but should make the move of its own volition.

COMBAT INSECT PESTS

The entomological department or division of the Dominion Department of Agriculture has never received the attention or assistance that its importance deserves. It is sadly undermanned, lacks funds, and altogether is neglected in a manner that reflects sadly on the Dominion Government, as well as on ourselves as a people. Did we but understand more clearly how important it is that we should have a better knowledge of the insect pests that thwart, rob and annoy us each year we would long ago have seen to it that the Entomological Division was given the support that the needs of the country require.

Government authorities have estimated that the Codling Moth, or Apple Worm, causes a loss exceeding twelve million dollars a year in the United States. This estimate does not include the expenses of labor, spraying apparatus, and poisons used against this pest, which amount to three or four million dollars a year more. The Plum Curculio causes likewise a loss running into the millions of dollars. In Canada the loss is proportionately as great. These, however, are but two of scores, even hundreds, of insects that might be mentioned. The fruit, flower and vegetable growers have their special insect foes to combat, and they need and should have at their disposal all the helpful information that the gvernment can provide.

But the people interested in horticulture comprise only one class in the community. What about our farmers who each year lose millions of dollars through the ravages of insect pests in their grain and other crops? What, also, about our forests? A report recently issued by the government states that fire and insects between them have caused untold loss in the forests of Canada. The bark beetle alone has killed practically all the tamarack, and is now at work on the mature spruce in the timbered sections of the west that it was hoped might be drawn on in connection with the construction of the James Bay Railroad.

Commendable assistance has been granted to the seed division of the Dominion Department of Agriculture. The expenditures that have been involved have been shown to have been justified. Equal importance might well be given to the work of the entomological division. This branch of the work of the Department of Agriculture should be given more attention immediately.

A GLANCE AHEAD

This is a day of mergers and combines. The Monetary Times is authority for the statement that during the past ten years the number of boot and shoe factories in Canada has declined from 5,398 to 138; the carpet factories from 557 to 5; carriage and waggon establishments from 3,336 to 368; agricultural implement concerns from 221 to 88; and furniture factories from 1,286 to 181. The reduction in other lines of manufacture has been about equally striking.

Combines of this character do not always result injuriously to the consumer or to the producers of the raw material. There are instances where they have effected economies in manufacture that have resulted in a reduction of the retail price of the finished article. As a rule, however, they are dangerous. They lead to the concentration and control of great wealth in the hands of a few and generally have for their object the control of prices in a manner almost invariably inimical to the best interests of the consumers and often of producers as well. The canning combine in Ontario has not benefited the producers to any extent and has increased prices to the consumers.

Is there a possibility that the production of fruit may be working in the same direction? The purchase and leasing of over nine thousand acres of fruit land in Ontario and Quebec during the past year by a company capitalized at a million and a quarter of dollars has been followed by a rumor that it is proposed to organize a somewhat similar company to be known as The Nova Scotia Fruit Estates Limited, with a capital of one million dollars, to acquire and work fruit land in the fruit districts of Nova Scotia. While ventures of this character hitherto have generally proved disastrous, leading financiers are moving in this direction. They have the benefit of the knowledge gained from previous undertakings of the same nature. Never before has the movement reached such proportions as it has this year in Ontario. The fact that the best fruit lands are limited in area has an important bearing on the situation.

Fruit growers who lease their orchards to these large concerns and bind themselves to care for their orchards in a stipulated manner become little more than employees on their own places. Where they have neglected in the past to take proper care

of their orchards such a fate is little better than they deserve. It is a working out of the great law that leads the less able to become dependents on others more intelligent and capable than themselves. Nevertheless, what is the outcome likely to be? What is wanted is not a few large concerns with many employees working the land for them, but numerous small orchards managed by independent owners. These small owners must, of necessity, cooperate, but they should not sacrifice their rights to the soil in so doing. This may be looking ahead for trouble, but the tendency referred to should be watched carefully.

A NARROW MEASURE

Some months ago there came into our possession two photographs that had been taken in the packing rooms at Grimsby, Ont., of one of the largest tomato growers in the Niagara District. A polite request was sent by us to this party for some general information about his methods that might be used in connection with the reproduction in The Canadian Horticulturist of these views. No response being received to our first letter, we later sent a second. To this we recently received the following reply:

"Do you think for one minute that we are "asleep? Don't fool yourself. If the peo-"ple want to grow tomatoes let them get "busy and find out for themselves. We are "not 'learning' other people at our expense. "We do not allow people through the green-"houses and will not give any information "on the subject whatever."

Once or twice before we have come across misguided men of this type, but we had hoped that in this year of grace the last of them had found by now the error of their way. What a fortunate thing it is for us, and for them, that there are not more of them! Were this view of life and business to prevail we might expect to find men guarding their establishments with shotguns for fear others might learn something from them by peeking over their high-board fences. We would have to discontinue our farmers' institute meetings, fruit and vegetable growers' conventions, packing schools, and so forth, for no one would care to address them on account of the danger that they might let slip some priceless secret. We might as well, also, close our churches, as somebody might learn from us how to become Christians, and then there mightn't be room for us all in Heaven.

Such men deserve our sympathy and tolerance. They are their own worst enemies. Their mistake arises from the fact that they have failed to comprehend the working of that Divine law which has declared:

"Give, and it shall be given unto you: good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again."

The Dominion Government is to be commended not only upon having decided to investigate the extent and the possibilities of the fruit growing interests in Canada, but also upon having placed this work in charge of Mr. W. H. Bunting, of St. Catharines. No more capable man for the work could have been obtained. Besides having a practical experience, extending over years, in the growing of all the leading varieties of fruit, including not only apples, peaches and pears, but small fruits as well, Mr. Bunting has time and again shown his ability in other matters that have involved hundreds of thousands of dollars to the fruit growers of Canada. Upon him devolved the duty of preparing the main case for the fruit growers in their fight before the railway commission, first against the railway and more recently against the express companies. How splendidly he succeeded was shown not only by the important concessions gained, but by the compliments paid him by two different chairmen of the railway commission upon the manner in which he submitted his arguments and presented his facts. We have long needed such a report as Mr. Bunting has been deputed to prepare. It may be safely predicted that this report when presented will be thorough and authoritative and a credit to the Department of Agriculture.

Can any readers of The Canadian Horticulturist furnish us with information concerning Charles Arnold, late of Paris, who originated the Ontario apple? One of our subscribers in British Columbia, who has been seeking information on this subject, has written us recently as follows: "A fruit that bears the proud name of your province, and that is among the very first cross-bred apples, as years go by, and the importance of cross-bred varieties increases, will be hunted up for the veriest detail of its origin, which then may not be obtainable owing to those who know having passed on. There must be some among Mr. Arnold's descendants or friends who could give a detailed account of the origin of this apple." Our correspondent is right. It is to be hoped that already it may not be too late to obtain the desired information about this great variety of apple.

As the society reports in this issue of The Canadian Horticulturist show, a number of horticultural societies in Ontario have held successful rose shows during the past few weeks. This is an excellent line of work for societies to undertake. It involves considerable work for the officers, but nothing worth while can be accomplished without effort. The rose is a popular flower with the public, and a rose show for that reason generally draws a better attendance than can be obtained for other exhibitions of the same class. Societies which have not attempted to hold exhibitions could not do better than to start next year with a rose show.

PUBLISHER'S DESK

Our front cover illustration this month shows cherry pickers at work in Hillcrest Orchards, Kentville, N. S. The trees are Montgomery variety six years old. In 1909 two thousand trees of this orchard produced one thousand three hundred boxes. Individual trees yielded as much as sixty pounds each.

A circulation statement, showing the actual paid circulation of The Canadian Horticulturist by provinces, and by counties in Ontario, has just been prepared. This is given, along with other information that will prove of interest and value to advertisers, in an attractive little folder which we have just issued. Copies of this folder will be mailed on request. The number of paid subscribers to The Canadian Horticulturist is but a few short of ten thousand, which number we expect will soon be exceeded. This great gain in circulation demonstrates the rapid progress that is being made by The Canadian Horticulturist.

Subscribers sometimes write to us for information, but neglect to sign their names to their letters, using a nom de plume instead. Their expectation evidently is that we will publish their question and an answer to it in The Canadian Horticulturist. To all such we would say "DON'T." It frequently happens that our space does not permit us to publish such an article, and as we do not know our correspondents' names we are unable to write to them direct giving them the information they desire by letter.

For the illustrations of Toronto gardens, published on pages 187 and 188 of this issue, we are indebted to the officers of the Toronto Horticultural Society, who used them recently in their excellent year-book for 1911, mention of which was made in our July issue. A number of other equally fine illustrations appear in their year-book, some of which may be used later in The Canadian Horticulturist.

Next month will appear our Special Exhibition and Packing Number of The Canadian Horticulturist. It will be all that we have said about it in previous issues and more. The manner in which our leading government officials, both Dominion and provincial, and prominent fruit growers in all our fruit growing provinces, have rallied to our assistance has been most gratifying. This issue of The Canadian Horticulturist will be a distinct improvement over anything we have ever before attempted. The illustrations will be a feature that will be certain to please. The colored illustration on the front cover will be both striking and attractive. Many extra copies of the issue will be printed for distribution at the Toronto and other leading exhibitions. Advertisers will do well to reserve large space and soon, as the forms will start going to press early this month and the best positions still left cannot be held open long.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

MITCHELL

Our society, which has a membership of over one hundred, has been the means of improving the many homes in this town. There is a healthy rivalry amongst its members to see whose place can be made to look the best. The fences are taken down between the houses, and the boulevards in their fronts, making altogether one of the prettiest inland towns of Ontario.

We keep the grounds beautified around the new Carnegie Library, and we are contemplating building a dam below the gates at the waterworks, from the Thames River. There are spring waters running into this, and it is the intention of the society to clean out the bed of the river, and have a constant flow of pure running water, with seats arranged along its sides. At present the place is an eyesore from the Main Street. The citizens have promised to contribute the larger part of the outlay.

There is always a looking forward to the next issue of The Canadian Horticulturist, of which each member gets a copy. You as well as ourselves are endeavoring to do a good work, and we wish you every success.—A. J. Blowes, sec.-treas.

ST. CATHARINES

The eighth annual show held by the St. Catharines Horticultural Society, the latter part of June, was an immense success. There were several hundred exhibits, and the hall in which the exhibition was held was filled with a wealth of exquisite blooms, that delighted the hearts and charmed the eyes of the spectators. By the testimony of one of the judges, such a display of amateur grown roses could not be found in any other city on the continent.

With a membership of over six hundred pledged to make St. Catharines the most beautiful of cities, the local horticultural society has abundantly justified its existence. But it required work to achieve this measure of success. Eight years ago when the first rose show was held, Mr. W. B. Burgoyne, who has been president for some years, had to drive around the city the day before to find exhibitors and prevent the show from becoming an ignominious failure.

GRIMSBY

The Frau Carl rose was given our members as a premium by our society several years ago, and now it is showing up at its best. It is the purest white and the most perfect form of any white rose in my collection. I do not find sandy knolls suitable for my roses. I have transplanted all mine to soil of heavier texture with very marked results, both in vigor of plants and in profusion of bloom.

Our rose show was held during the latter part of June at Dr. Clarke's private grounds. There was a fine show which, with music and conversation, made a delightful evening for a village society. This year we gave our members Gruss an Peplitz, a new hybrid tea rose.

TORONTO

The rose show held recently by our society was the most successful in the series of exhibitions that are being held. There were numerous other exhibits besides roses, however, although the popularity of the rose was shown by its predominance over that of the other flowers exhibited.

An exhibit of rare orchids and ferns by Mr. Thomas Manton attracted many admirers. An exhibit of hardy perpetuals, hybrid teas and climbing roses of Mr. W. G. MacKendrick, president of the society, was very fine and one of the features. The great variety of roses which may be grown in Toronto was shown by an extensive exhibit from Alexandra Park. There was a fine display of fruits and vegetables.

Bronze medals were awarded to Miss M. E. Blacklock for spiraea venusta, to T. D. Dockray for perennials, and to T. W. Armitage and W. J. Smith for Japanese iris.

LINDSAY

Our society held a nice meeting in the spring and afterward distributed to our members seventy-five clematis and seventy-five climbing roses in variety. To those who received them we have given a lot of personal instructions in regard to methods of cultivation. Our membership is now seventy.—F. L. Frampton, Secretary.

MacDonald College Appointments

The Board of Governors of McGill University, Montreal, have confirmed Prof. F. C. Harrison, B.S.A., D.Sc., F.R.S.C., in full status as principal of the affiliated institution of Macdonald College, Quebec, in which he was appointed bacteriologist and later as acting principal upon the retirement of Dr. James W. Robertson, in the early part of 1910. Since assuming the difficult duties of acting principal Prof. Harrison has shown administrative abilities of a high order, which have now been recognized.

Professor Harrison was born in 1871, and was educated at Westminster and other English schools. From a scholastic standpoint, he is eminently qualified to hold the position he has been appointed to, having obtained degrees and honors from the Ontario Agricultural College, Toronto University, McGill, the Royal Society of Canada, and other leading educational institutions and societies. Mrs. Harrison, who has been a devoted associate of Professor Harrison in his life work, is the daughter of Dr. James Mills, formerly president of the Ontario Agricultural College, and now a leading member of the Canadian Railway Commission.

Mr. E. M. Straight has received the appointment of assistant professor of horticulture. Mr. Straight is a New Brunswick man. He was born at Cambridge, Queen's county, where he received his education. After teaching in the public schools for a number of years, he was engaged in intensive market gardening, until he decided on an agricultural college training. This he secured at Truro, the Agricultural College, Guelph, and at Macdonald, Quebec. It may be added that he is one of Macdonald's first graduates.

The summer meeting of the Pomological and Fruit Growing Society of the province of Quebec will be held at Inverness, Megantic Co., August 29 and 30.

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TORONTO

Demonstration Orchards in Quebec

G. A. Gigault, Quebec, Deputy Minister of Agriculture

THE Minister of Agriculture for the Province of Quebec has given a grant of $800 to certain co-operative societies on the condition that such money shall be expended in doing orchard work to demonstrate how existing orchards may be made to produce more and better fruit, and show how the fruit may be marketed in the best possible way. The grant cannot be secured except through the formation of an agricultural co-operative society properly organized according to law. Any funds of the society, outside of the government grant, may be expended as thought advisable by the society. The government grant, however, can be expended only as directed by a joint committee, made up of three persons representing the said society, three persons representing the Quebec Pomological Fruit Growing Society, and one person representing the Department of Agriculture of Quebec. It is required that all accounts relative to the expenditure of the $800 grant be countersigned by the secretary-treasurer of the Quebec Pomological Fruit Growing Society before payment is made. The committee representing the Quebec Pomological Society is composed of Professor W. S. Blair, Macdonald College, Rev. Father Leopold, La Trappe, and Robert Brodie Esq., Westmount.

It is the duty of the joint-committee to formulate a line of demonstration work as thought advisable for the districts to outline in detail methods of proceedings, to select the orchard where the work is to be done, and appoint a capable man for carrying on the work. All travelling and other expenses incurred by the committee in connection with the demonstration orchard work will be paid from the grant of $800.

The work to be done will be confined to pruning, spraying, cultivating and fertilizing bearing orchards, and to the packing of the fruit. The work to be undertaken will benefit the whole community by demonstrating proper methods of carrying on the above operations. The work will be confined to one or at the most two orchards in a district. The intention is to do thorough work in one orchard rather than spend the money in doing a little in several orchards.

METHODS OF WORK

It is not the intention of the committee to rent an orchard or orchards for this work. It is thought that orchards can be secured in which to conduct the work by the committee agreeing to pay all the expenses of spraying, pruning, fertilizing, cultivating, harvesting and marketing, the owner receiving all the money obtained for the fruit, and in case the returns are not as great as in adjoining similar orchards, the shortage will be paid by the committee from the grant for demonstration orchard purposes.

The work is to be done, as far as possible, by hiring men and horses and wagons, as well as such implements as are necessary, from the owner of the orchard. The rates for labor are fixed by the committee. Proper spraying outfits, ladders, scales, buckets, measuring dishes and so forth will be secured and paid for from the government grant and remain the property of the co-operative society to be used or disposed of as directed by the joint-committee.

The owner of the orchard cannot in any

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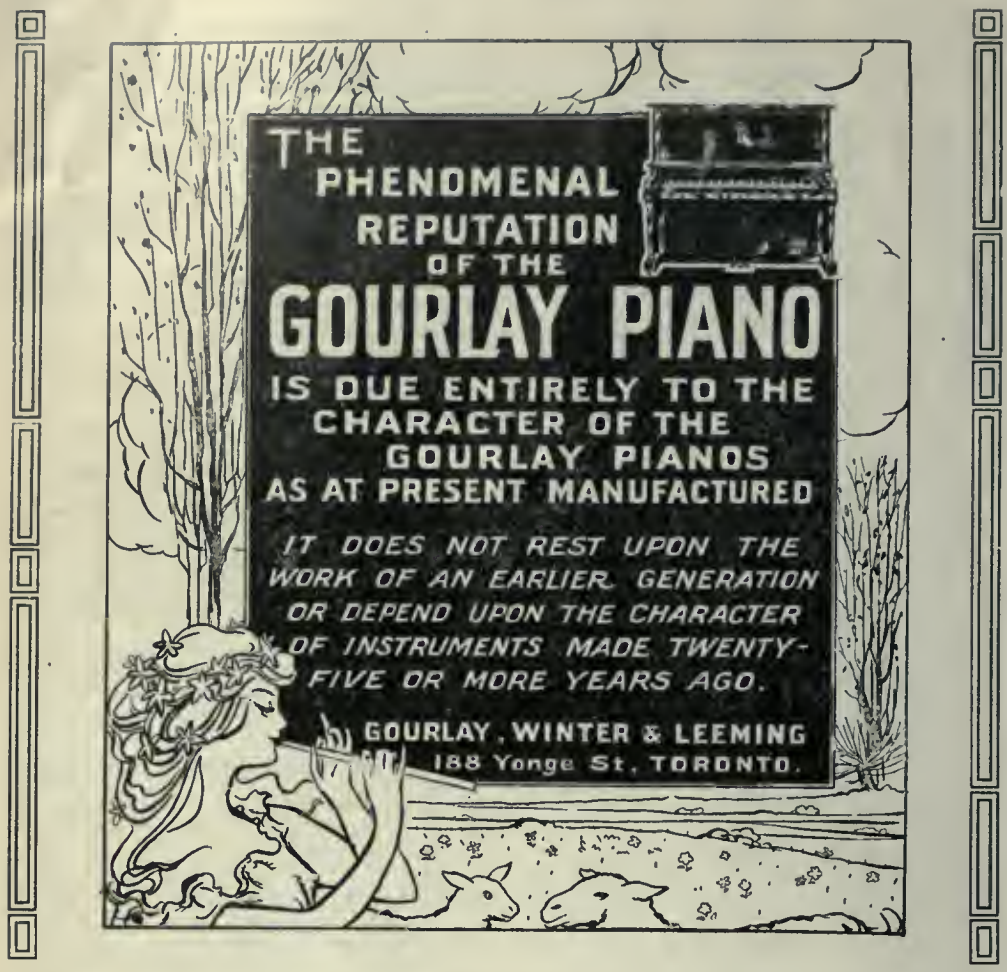
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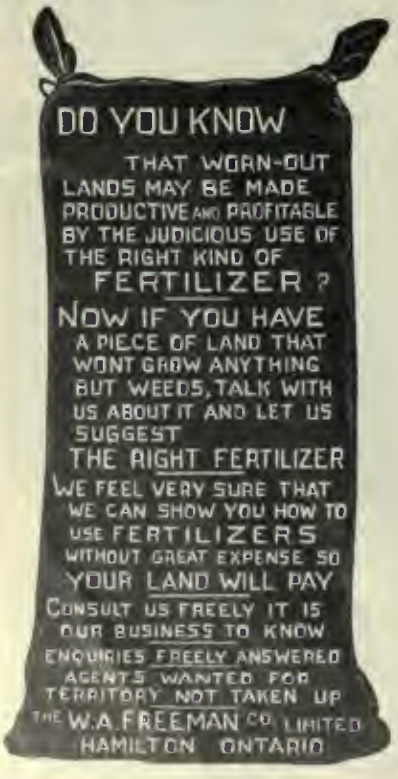
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way interfere with the work to be done in the orchard. The Superintendent does only such orchard work as directed by the secretary of the joint-committee, Mr. Peter Reid. He is given instructions in detail regarding the demonstration work, and is held responsible for the proper carrying on of the work. Monthly orchard meetings may be arranged as thought necessary by the joint-committee, and the expenses will be paid from the $800 grant.

Should the co-operative society wish to secure spraying materials, commercial fertilizers or fruit packages in a wholesale way, arrangements will be made, if considered advisable, for the Superintendent to procure and take pay for such material at some central place, twice a week. The Superintendent is to keep a careful report of all the time spent in the various operations, and the date on which the work was done. The Superintendent is paid $70 per month from April to November 1st.

Eighty trees of fairly uniform size and of one quality are required, and two plots of cultivated area and two plots of uncultivated area, or forty trees, are to be manured in the spring at the rate of twelve tons of good stable manure per acre. One plot of cultivated and one plot of uncultivated areas will not be fertilized. All of the grass on the uncultivated area will be cut when six inches high and allowed to remain on the ground as a mulch.

All of the trees will be sprayed in the spring before the buds break with lime-sulphur. Bordeaux mixture wil be used on all plots except two, one being the cultivated and the other the uncultivated manure plot, where lime-suplhur only will be used entirely. The trees will all be sprayed with arsenate of lead except on one-half of the unfertilized cultivated and one-half of the unfertilized uncultivated plots, where Paris green will be used.

Four demonstration orchards and co-operative societies have been organized, namely the St. Hilaire, Abbotsford, St. Joseph du Lac, and Havelock.

A Big Orchard Concern

The advertisement of the National Land Fruit and Packing Co., Limited, has appeared in some of the English horticultural and other publications offering for sale 150,000 seven per cent. preference shares and 100,000 ordinary shares of £1, or approximately $5 each. The company is capitalized at $1,250,000.

In its announcement the company states that it was formed in 1910 chiefly for the purpose of producing and marketing apples grown in the province of Ontario, and that for this purpose it has acquired established orchards containing over 140,000 bearing trees, constituting what is believed to be the largest apple producing property in the world under one ownership. The company owns 9,115 acres, of which 5,377 are freeholds and 3,738 are leaseholds, situated on or near the shores of the Great Lakes. The company proposes to acquire further specially located freehold orchard lands from time to time, and during this and several succeeding seasons to plant upwards of one thousand acres per annum with selected standard apple trees, of which a large number will be early varieties.

The company proposes also to establish a number of manufacturing plants close to each group of properties, and all apples which are not marketable in the ordinary manner will be sent to these factories and treated by evaporation or other processes. It is estimated that upwards of 12,000 tons of apples will be treated in this way this season.

The president of the company is H. Pollman Evans, of Toronto, the President of the Union Life Insurance Company. The directors are Thos. T. Rolph, Hon. Geo. E. Foster, M.P., and D. A. Burns, of Toronto, Wm. M. German K.C., M.P., of Welland, E. L. Taylor, K.C., Winnipeg, Man., and G. L. Campbell Dauncey, London, England. It is to be presumed that this is the company that has been leasing and buying orchards throughout Ontario during the last year, reference to which has previously been made in THE CANADIAN HORTICULTURIST. It is to be hoped, if the expression is permissible, that for the sake of its shareholders the company has not bitten off more than it can chew.

PROVINCIAL NOTES

Eastern Annapolis Valley

Eunice Buchanan

The dry weather still continues except for a heavy thunder shower on July 12. Strawberries have suffered considerably, but the apple trees look remarkably healthy. More apples have dropped than was at first expected, but the fruit is unusually clean, very few spotted or wormy apples in evidence.

There has been quite a plague of green aphis on the young apple shoots, and the weather, warm and muggy, has been conducive to their increase. Gardens have had much with which to contend in the way of cutworms and dry weather, so that seeds have been unusually long in germinating.

It is estimated that during the season of 1910-11 Nova Scotia exported apples equal to 248,009 barrels and used 75,000 barrels at home. The principal markets were in Great Britain, South Africa, Newfoundland and the West Indies.

Quebec

Auguste Dupuis, Director of Fruit Stations

Insects of all kinds have committed much damage to fruit and ornamental trees. Sugar maples and soft maples in the hills and mountains, spruce and pines have all their particular insects, who destroy their foliage. Acres and acres of fine sugar maple trees have been defoliated. Small, green caterpillars which did not find any more leaves to devour hung by millions under the trees. Probably a second brood will hatch soon and will continue its work of destruction till autumn.

In Kamouraska, L'Islet, Montmagny, Bellechasse, Levis, and Lotbiniere Counties the eldest inhabitants never saw such a plague. Insects hatched in May one month earlier than usual. The plum Curculio, Codling moth and two other green caterpillars were very numerous in the apple and plum orchards on the shores of the St. Lawrence. Apples are eaten from inside and outside. Spraying is practised by few. The Honorable Mr. Caron, Minister of Agriculture, sent experts with outfits to spray the orchards east of Quebec where insects were doing the most damage. The trees will be thoroughly sprayed three times. Lessons are given to orchard owners in spraying well and in the right time, in the cleaning of the bark and in pruning of trees. We hope that the work will be efficacious and that the contrast between orchards sprayed and those that have not been sprayed will induce fruit growers to spray in future and to cooperate with the members of the horticultural societies of Kamouraska and L'Is-

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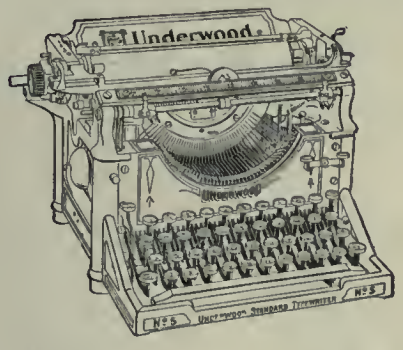

Modern and Ancient
CHAPTER 2 (a)

GEORGE Carl Mares, of London, England, has just published an elaborate book, "History of the Typewriter." In the preface he says:

THE greater portion of this volume was put into print in 1907, but the constant stream of new machines placed upon the market about that time made it necessary to defer publication.

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let Counties in the purchase of good spraying outfits, insecticides and fungicides.

CROP PROSPECTS

The apple crop is promising, but the plum crop will be very light. Cherries are a failure, small fruits abundant. The orchard area has greatly increased. Better and more suitable varieties adapted to our northern latitude have been planted. Ontario nurserymen who advertise in The Horticulturist instruct their agents to sell only varieties which mature their wood quickly and forbid them to sell Baldwin, King of Tombkins, R. I. Greening, Newton Pippin trees all of popular varieties but needing a longer season of vegetation than ours. Unscrupulous jobbers a few years ago sold in our districts a great number of these varieties which have all died. It was a great loss which discouraged the farmers who lost confidence in nursery grown trees. Nurserymen advertising for agents mentioning that "no experience in fruit culture is required of salesmen" should not be trusted. The sales of fruit and ornamental trees of flowering shrubs by nurserymen of Quebec and Ontario provinces have doubled this year. The Village des Aulnaies has increased its area considerably and being the most northern nursery of Canada can fill orders for dormant trees much later in spring than the western nurseries.

The multiplying of Damson and Reine Claude plums on own roots (not grafted) is a speciality here and deserves the extensive propagation it has acquired on account of the delicious quality of their fruits and the hardiness of the trees which once planted last eighty to one hundred years.

Georgian Bay District, Ont.

The fruit growers of the Georgian Bay District are making a big effort to grow clean apples this year. Although some few growers have sprayed for some years, last year was the first year spraying was undertaken on a large scale. It was so successful that this year a large quantity of material has been used. Four cars of lime-sulphur, besides some home boiled, have been used by the Georgian Bay Fruit Growers, Ltd., and four tons of arsenate of lead so we expect neither scabby nor wormy apples.

The orchard of Mr. Wm. Reekie, the president of The Georgian Bay Fruit Growers, Ltd., has been properly sprayed, pruned, fertilized, and is well worth a visit. It is likely to have one hundred and fifty to two hundred bbls. per acre. It contains principally Gravenstein, Snow, Spy, Baldwin, and Spitz.

The manager's orchard, J. G. Mitchell, will likely average four to five barrels per tree of thirteen-year-old Spys. Some fruited at eight years, and have been bearing every year since, showing the effect of good cultivation and proper pruning. Mr. Mitchell believes in early training. The old orchard is also well worth a visit. The writer was particularly struck with the appearance of a young orchard of 1,140 trees planted on the filler system one hundred trees per acre. The main orchard will be Baldwin, fillers, chiefly Wealthy and Duchess. The orchard has been fertilized with nitrogen, phosphate and potash, and the growth of the trees has been extra.

The Georgian Bay Fruit Growers, Ltd., have about one hundred and fifty acres in bearing, and expect to plant one hundred to one hundred and fifty acres next spring.

There are a large number of smaller orchards here in Thornbury, probably two hundred acres more. We also have a branch of The National Land Fruit and Packing Co., Ltd., here. Cant. Ferguson, who is in charge, tells me that they pruned and

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sprayed over four thousand trees in this neighborhood. They are renting orchards, and they have made a big improvement in orchard work.

Altogether we expect to open your eyes at the Horticultural Exhibition in Toronto next November, especially as we justly claim to have the best home of the Spy, and no better place than the Beaver Valley for the other good kinds.—G. W., Clarksburg, Ont.

Lambton County Openings

S. E. Todd, B. S. A., Petrolia, Ont.

One of the anomalies of the history of agriculture in Ontario is the circumstance that the development of many of its industries is the result of accident rather than intelligent design. A section of country, which happens to have as pioneers men of more than ordinary intelligence, or that by some other accident has had planted crops peculiarly fitted to its climatic soil and market conditions, will be found to develop rapidly, whereas another section, equally well adapted, will lie waste.

This peculiarity is well exemplified in this county of Lambton. The region around Arkona was the first in the county to become well known as a fruit producing district. A study of the cause of this condition shows that some years ago a number of people of the Niagara District emigrated and settled around Arkona, bringing with them the ideas of fruit growing inculcated by their experience in their former homes.

Around Sarnia an extensive vegetable trade is growing up, and again you will find that the nucleus of the growers was drawn from the vegetable gardening class around Hamilton. Forest, on the other hand, has become well known as an apple producing district, mainly due to the superior intelligence of the old Scotch pioneers, of whom Mr. James Johnson was the most far-seeing. The great development there is largely due to the care and foresight exercised by this splendid old settler, who planted and cared for the orchards that are now so well known as those of Johnson Bros.

PEACH GROWING

The first attempt to grow peaches in a commercial way was in the region of Arkona, and partly due to lack of knowledge of conditions and of the more advanced methods of cultivation, and it may be partly due to climatic conditions, the attempt was only fairly successful. In the region around Forest in the early days, peaches succeeded perfectly, but were never grown commercially. Later the "Leaf Curl" completely wiped out the peaches, and because no one was sufficiently interested in them, the disease was not studied, and until within the last few years no attempt at control was made. Thus it will be seen that development in the past has been largely accidental.

To-day, however, a new situation is noticeable. The subject is being taken up in a more intelligent manner. A study is being made of climatic, soil and market conditions and the particular classes of fruit best suited to the individual sections are largely being planted. The result is that very great and rapid development is taking place, owing to the confidence with which the investor can look to the future. A man who, having investigated the climatic conditions, studied the soil, and examined the outlook for market, finds all of these favorable when intelligent selection is made, moves forward to the development of his particular property with a confidence that is unknown to the haphazard investor and planter. This condition is the answer to the

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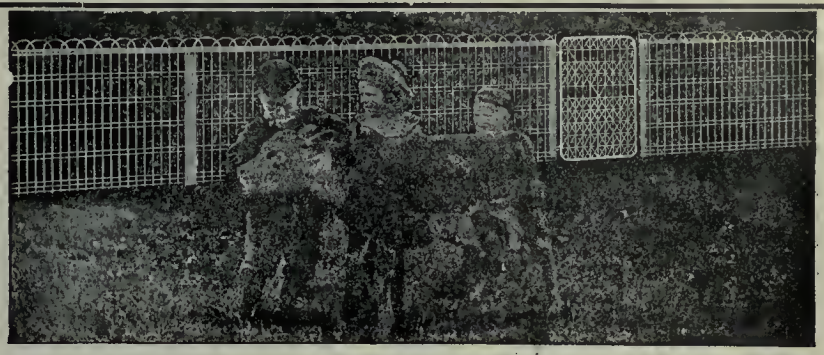

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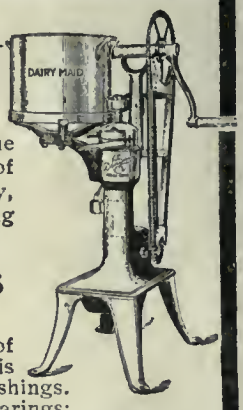

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are the only separators with dust-proof and milk-proof gears, which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. These separators have large shafts, bushings, and bearings; the flexible top-bearing is the strongest and most effective found in any separator. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated. I H C Cream Harvesters are made in two styles—Dairymaid, chain drive; and Bluebell, gear drive—each in four sizes.

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rapid development in the region along the lake shore from Sarnia east to Thedford and Arkona.

This year about 70,000 trees of various classes have been planted in this district. A large proportion of these are peaches, although the apple is predominant. The early apple, to supply the western trade, is commanding considerable attention, owing to the advantage in climate for the production of these varieties enjoyed by the county, and to the great and growing demand for these apples. A notable feature is the fact that practically the same varieties of the different classes of fruit are being planted throughout the district. This will mean uniformity of product.

Cherries are beginning to demand considerable attention, and pears are being planted to a limited extent. This fruit will be planted much more extensively in the near future, because of the ideal soils and climatic conditions that generally prevail here. Plums have long been grown commercially, and the tendency in this district is perhaps to somewhat overdo the planting of plums.

It Pays Them

We find THE CANADIAN HORTICULTURIST one of the best advertising mediums published in Canada for our goods. It reaches the most progressive people in the land who are interested in agricultural pursuits. You may depend on our continuing to use your columns for a good many years in the future.—Brown Bros. Co., Nur-

That the astute business men of the Dominion look to great development in the future in this district is evident from the fact that two very large canneries have been established in the county this year, one in the town of Sarnia and the other at Petrolia, having a capacity of about 2,000 acres of crops each. The production of vegetable crops by this means has been given a great impetus. In the region around Sarnia and north of Thedford, some of the very finest land in Ontario is being developed into celery and other vegetable gardening crops. The tomato crop has increased about 700 acres, while cane berries and strawberries are being planted extensively to supply the demand for the canning factories.

A GENERAL DEVELOPMENT

It will be seen that the development is along very general lines. The county, in a few years, will be producing not one class of fruit only, but practically all of the valuable fruits and vegetables grown in Canada. This must mean that this county will have a great advantage over many sections that are specializing in only one or two branches, in that in case of failure in a single crop or possibly two crops the others will be left to insure something for sale each year. The importance of this fact can scarcely be over estimated.

When we consider that geographically this fruit district is situated on the southern shores of the great body of water of Lake Huron and somewhat south of the Niagara fruit belt, and is climatically on a par with it, we may look forward with confidence to the successful and rapid development of this new district. As yet it is in its infancy. The new plantations, considerable though they are, are almost swallowed up in the stretches of fertile country yet awaiting the investor. Opportunity and success awaits the intelligent investor and worker in this region.

Still More Points for the Few Who Have Not Gone Thoroughly Into U-Bar Greenhouse Construction

Last month our chat was particularly about the way these houses are bound to outlast others, because of no joints at the eaves, and the complete protection from decay of the wood in the steel encased U-Bar, but we stopped talking just as we were about to mention the question of heat.

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When you examine one of these spreaders, note the extreme simplicity and great strength of the working parts; note that the beater driving gear is held in a single casting, thus there is no binding nor cutting of parts caused by the gearing springing out of alignment. Notice the roller bearing support for the apron which reduces the draft of the machine; operate the convenient levers; notice how quickly and easily the feed changing device can be shifted, and the wide range of adjustment.

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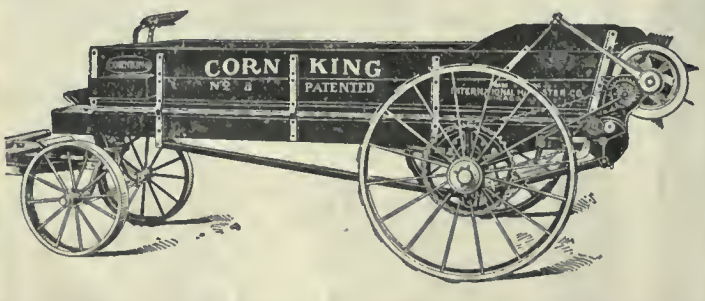

Last Year's Peach Shipments

THE CANADIAN HORTICULTURIST is in receipt of Bulletin 27, of the Dairy and Cold Storage Series, issued by the Dominion Department of Agriculture, entitled "Trial Shipments of Peaches in 1910." It is by J. A. Ruddick and W. W. Moore. This bulletin gives complete information about the peaches shipped to the British market last season, with an addenda dealing with the South African export peach trade. Among the general conclusions given in the bulletin are the following:

That Canadian peaches can be delivered in Great Britain in good marketable condition, provided proper care is exercised in preparing them for shipment.

That only peaches of good quality, of large size, and with a touch of color should be shipped.

That every detail of packing must be attended to with scrupulous care.

That if peaches can be pre-cooled before shipping they may be picked in a more mature condition, which would add to their flavor, size and appearance.

That shipment by fast freight in a well iced and properly loaded refrigerator car is better than by express.

That in the ocean steamers any temperature between 35 and 40 degrees will carry the peaches safely if they have been delivered to the steamship in right condition.

That it is important to have the temperature gradually raised to about 55 degrees during the last thirty-six hours the fruit is in the ship's refrigerator so that when it is landed there will be no condensation of moisture from the warmer outside air.

That it would be an advantage if during the next few years all the Canadian peaches shipped could be sold by one broker in each of the principal markets so that undue competition might be avoided.

That only a comparatively small quantity of our peaches can be disposed of in Great Britain at the prices realized for our shipments the past season, and that if our growers desire an outlet for a considerable quantity a much lower price will have to be accepted, and finally,

That the number of growers who are in a position to successfully cater to this export trade is limited, and that if it is gone into by the average grower, or shipper, following the average slipshod methods, nothing but disaster may be anticipated.

The reports show that the shipments of South African peaches which reach the British market at a different season, have increased from 7,612 cases in 1906 to 23,646 cases in 1910. The estimated average cost of shipping South African peaches, including the cost of packing material, freight, and the London charges, is forty-eight cents a case with an average price obtained of one dollar and forty-four cents a case.

Items of Interest

A correspondent of THE CANADIAN HORTICULTURIST, R. R. Sloan, of Porter's Hill, reports that the fruit crop prospects in Huron county, Ontario, are that there will not be a heavy crop of apples this fall, as the blight that affected the trees last year has not expended its full effect. Baldwins made hardly any showing, Spies had less than one-third of a normal bloom. Kings, Greenings and early fall apples, pears, plums, and cherries made a good showing. There has been more activity in orcharding in the county this year than ever before.

Mr. J. MacPherson Ross, of Toronto, who has frequently contributed with acceptance to the columns of THE CANADIAN HORTICULTURIST, announces that he is open for engagement as a landscape gardener.

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Part 2.—Descriptions of Varieties of Apples, which are grown in the various Provinces of the Dominion of Canada, made by the author from personal study of both the trees and the fruit with full size photogravures of the fruits themselves made under his personal supervision.

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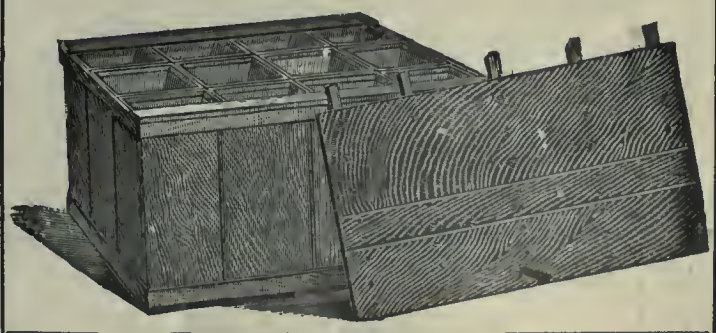

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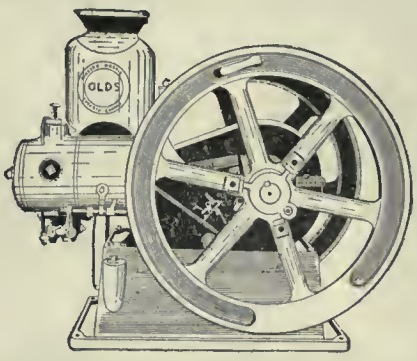

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THE WATER JACKET, Cylinder, Valve Chamber and Main Frame are four entirely separate castings.
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THE OLDS combines SIMPLICITY and QUALITY in every detail of its construction.
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POULTRY DEPT.

Give Green Feed

Chickens running off grass should be given plenty of finely chopped vegetable matter between other meals. Fine lawn mowings, onion tops, lettuce and cabbage leaves, thinnings from the seedling beds or any other garden produce that is fresh and wholesome is good for chickens and they should have all they will eat.

A common cause of constipation in chicks is traceable to indigestion brought about through lack of grit. Unless the food fed to chicks is, by the aid of grit, properly dealt with in the gizzard, a great strain is put upon the other digestive organs, with the result that they become debilitated, and, consequently, the bowels become loaded with unassimilated matter. Not only should the chicks have a constant supply of fine grit, but they should have a little finely powdered charcoal added to their soft food occasionally to sweeten their crops and tone up their digestive systems. A sprinkling of sulphur also will have a beneficial effect upon the liver, and assist the bowels to properly perform their functions.

Chickens failing to feather up properly often cause anxiety to the attendant. Such a condition is traceable either to low vitality, insect pests, or lack of animal matter in the rations. Such chickens as fail to produce feather should be examined for lice, and if they are found to be free from these pests they should be given a liberal allowance of milk and a little sulphur in their soft food. A little linseed meal in the food will also do good, as will also a daily allowance of well cooked and finely chopped lean meat. Finely chopped cabbage is a good feather producer, and this should be fed as much as the chicks will eat.—The Poultry Advocate.

Fruit Investigation

The Minister of Agriculture has authorized a special inquiry to be made into the fruit growing industry of Canada, under the direction of Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner. The well-known fruit grower, Mr. W. H. Bunting, of St. Catherines, Ontario, has been engaged to conduct the inquiry, and it is safe to say that no man in Canada is better equipped to undertake this important work. The officers of the fruit division will collaborate with Mr. Bunting in this work, as far as their other duties will permit them to do so. He will be assisted also by local officials of the different provinces and districts. The report, which should be a very valuable one, will be available for the Dominion Conference of Fruit Growers, that is to be held at Ottawa some time next winter. The investigation will be conducted with a view of securing some reliable data respecting:

1. Area and extent of land adapted to fruit growing in the various provinces.
2. Varieties of fruits which have been found to be most profitable and successful in the several provinces or subdivisions of the same.
3. General trend of the industry towards concentrating the production of large quantities of standard varieties.
4. Difficulties which are likely to be encountered.
5. Methods of production.
6. Facilities of distribution and marketing.

7. Possibilities of over production, and other similar information.

Mr. Bunting has commenced work in the Maritime Provinces, accompanied by his secretary . It is expected that it will require three or four months to complete the inquiry.

Fruit Crop Prospects

The improved weather conditions and rains during July have improved the crop outlook generally throughout Canada. Not for many years has there been so little fungous disease reported by orchardists in Eastern Canada. In Nova Scotia it is expected that the crop will be the cleanest ever harvested. In Ontario and Quebec also there is an unusual freedom from fungous diseases.

Pears will be a light crop everywhere. Plums promise a fair to medium crop in Ontario and Nova Scotia and in Prince Edward Island. On Vancouver Island and in the lower mainlands of British Columbia, plums and prunes will be only about 20 per cent. of a normal crop. In the dry belt of British Columbia a 40 to 50 per cent. crop is expected. Plums dropped in Ontario quite heavily during the early part of July, causing quite a shrinkage in the crop, but later the weather conditions improved and improved the prospects.

Early and late peaches will be a good crop. The quality will be good as a whole. Grapes promise a medium to full crop in the counties north of Lake Erie and a light to medium crop throughout the rest of western Ontario.

APPLE PROSPECTS

The prospects for apples have diminished slightly during July, except in British Columbia, where they rather improved. It is now estimated that shipments from British Columbia will be 85 per cent. of last year's crop, which was very heavy. Nova Scotia expects the greatest crop on record, due in part to an increased acreage, but also to a heavy yield.

In the counties bordering Lake Erie early and fall apples promise an average crop. Throughout the rest of western Ontario, winter varieties will be short, early varieties light to medium. A light to medium crop is expected in the counties along Lake Ontario. In the St. Lawrence Valley early and fall apples will be a fair crop.

A full crop of early apples is expected in New Brunswick and northeastern Quebec, and a medium to full crop of fall and winter apples. A medium to full crop of practically all varieties is expected throughout Nova Scotia and Prince Edward Island.

FOREIGN REPORTS

The early promise of abundant crops in Great Britain will not be fulfilled, as the crop will only be fair to medium. In New York State winter apples will be 55 to 60 per cent. of a full crop. Dry weather has lessened the apple crop in Arkansas, but the best orchards will bear heavily. A fair crop is expected in Maryland and Kansas and a good crop in Oregon.—(Extracted from Dominion Fruit Crop Bulletin for July.)

Standard Baskets

The Dominion Fruit Division states that it has received reports that some of the basket manufacturers are turning out baskets under the standard capacity of eleven or six quarts, and they claim that they are importuned to do so by certain growers who think that they can sell these small baskets of fruit for as much money as the full sized basket, even though it may, in compliance with the law, be marked ten quarts or five quarts as the case may be. The object aimed at in the law which fixed the dimensions and capacity of fruit baskets, was to provide a standard package so that the honest grower should not be placed at a disadvantage by those less scrupulous in

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Horticultural Society Competition for Valuable Sterling Silver Cup

(Donated by The St. Catharines Horticultural Society.)
Under conditions adopted by The Ontario Horticultural Association, revised at Annual Convention, 1910.

Exhibits to comprise the following:

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GLADIOLI: 50 spikes, 10 vases.
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PHLOX DRUMMONDI: 50 stalks, 5 vases.
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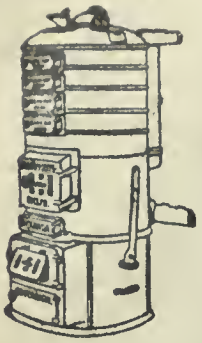
W. B. BURGOYNE, President. C. A. HESSON, Treasurer. MISS. L. A. RADCLIFF, Secretary.



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J. D. McGREGOR, MANAGER

such matters, and that the consumer should receive fair treatment by all. The fact that a basket may be marked ten quarts does not convey much to the average consumer who is not, as a rule, aware of the legal standard size.

The fruit inspectors will watch this matter carefully and prosecutions will surely follow if under-sized baskets are not marked according to the provisions of the law. The public should be thoroughly educated in this matter so that they may know when they are being imposed upon. It is in the interest of fruit growing that all baskets should be of the same size.

The Toronto branch of the Ontario Vegetable Growers' Association will hold its annual excursion this year to Niagara Falls via Lewiston on August 2nd.

Messrs. R. W. Bartmann and W. F. Kydd, of the Ontario Department of Agriculture, had charge of the large exhibit of fruit made at the Winnipeg Exhibition last month by the Ontario Government. Cold storage apples were shown and exhibits of fresh fruits such as cherries, currants, gooseberries and tomatoes, shipments of which were received daily. The exhibit was a creditable one.

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The Canadian Horticulturist

Vol. XXXIV SEPTEMBER, 1911 No. 9

The Pre-Cooling of Fruit

J. A Ruddick, Ottawa, Ont., Dominion Fruit and Cold Storage Commissioner

THE beneficial results of pre-cooling fruit, especially for long-distance shipment, are now so generally admitted and understood that very little needs to be said on that point. For early quick-ripening apples and tender fruits, the importance of having the temperature quickly reduced after the fruit is picked and packed, cannot be over-estimated. If warm fruit is loaded into an ordinary refrigerator car, it is several days before the temperature is brought down to the minimum, no matter how much ice is used. For that reason, the fruit must be picked in a green condition and before it has reached its full quality, to allow for the ripening in transit.

J. A. Ruddick

Even though the fruit may arrive at its destination in a sound condition, the quality will not be as good as it would have been if it had been allowed to have become more mature before picking. No matter how green certain fruits may be harvested, the distance which they can be shipped in iced cars without pre-cooling is very limited, if they are to arrive in perfect condition. Pre-cooling increases the distance for safe shipment, and thus extends the market enormously.

The term "pre-cooling" has been somewhat erroneously applied almost exclusively to the method worked out in California for the cooling of loaded cars of fruit and vegetables. Strictly speaking, pre-cooling includes any method of cooling or chilling before shipment, and while there are two or three large car cooling plants in California, there are some half-dozen smaller plants where the pre-cooling is carried out in the packing house. There is no difference in principle, or in the results obtained, other factors being equal, between car-cooling and cooling in a warehouse, but cooling in cars has some decided advantages over the other method, where the conditions permit of its being adopted, or the volume of the shipments warrant the necessary expenditure.

The pre-cooling of fruit in cars is carried out in the following manner. As soon as the cars are loaded, or at least as soon as possible after loading, they are brought to the refrigerating plant and connected to the system with flexible ducts which provide for the passing of a current of cold air through the car. The duct which carries the inlet, or cold blast, is attached to a false door which exactly fits the open door of the car, as is shown in the illustration on page 206. The outlets, or suction ducts, are fitted in the same manner into one of the hatches of the ice bunker at each end of the car. Fans are used on both the inlet and the returns to promote a rapid circulation of the cold air. Canvas baffles are hung temporarily in the car to deflect the air current so as to force it between the packages of fruit instead of passing merely over the surface.

The number of cars which may be cooled simultaneously is limited only by the capacity of the refrigerating plant and the number of connections. The refrigeration required per car is equal to about twelve tons of refrigeration for twenty-four hours; that is to say, if five cars are to be cooled at once, and within a reasonable limit of time, it would require a refrigerator plant of a capacity of sixty tons of refrigeration in twenty-four hours.

With sufficient refrigerating power, cars should be well cooled in four or five hours, including the time required for

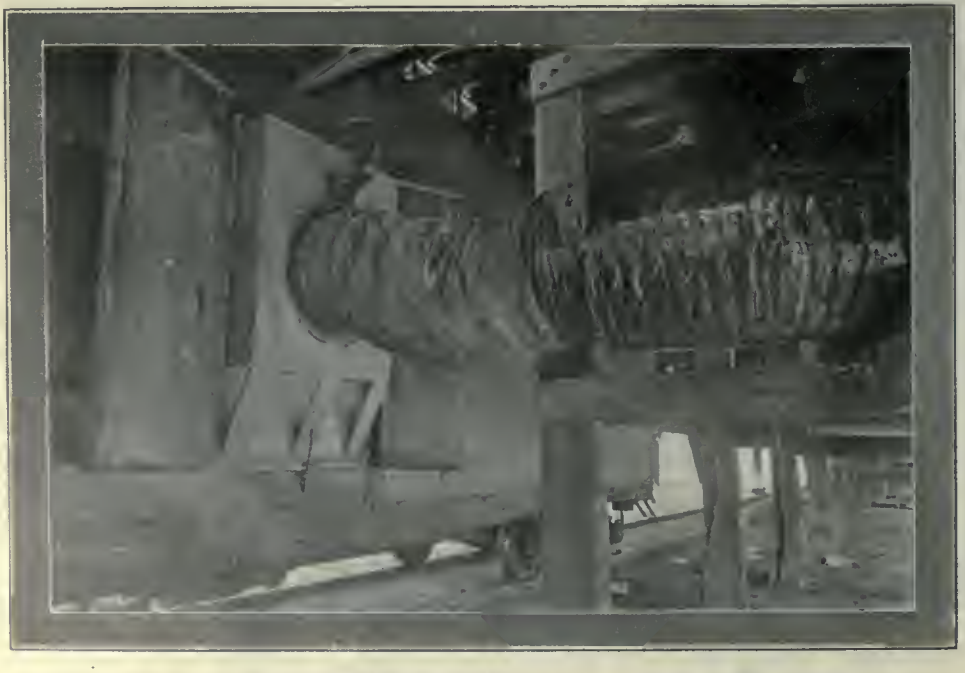
A Large Pre-cooling Plant in California Where Twenty-four Cars Can Be Cooled at the Same Time

connecting and disconnecting the air ducts, and filling the bunkers with ice after cooling is finished. The California plants use what is known as the "Intermittent Vacuum System," which is covered by Canadian patents. In this system, there is an arrangement of valves in the air ducts, the operation of which is supposed to create a partial vacuum in the car from time to time, but the writer is of the opinion that a direct current of cold air would be quite as effective in cooling the fruit.

Pre-cooling in cars has the advantage that it saves handling, and the fruit is not exposed to changes of temperature, as it is in being transferred from warehouse to cars. With plenty of refrigerating power, a low temperature can be employed in car-cooling to extract the heat rapidly from the fruit. It is quite safe to employ temperatures below the freezing point while the heat is still in the fruit. A pre-cooled car will carry very much farther without being reiced than one started with warm contents.

The only difficulty in the way of adopting the pre-cooling of cars in Canada is the cost of equipping the necessary plants. This will be prohibitive except in districts where there will be a large number of cars to be cooled.

We must not forget that cold storage or pre-cooling will not do everything, or remove all the difficulties met with in long distance shipment of tender fruit, or in long keeping of the hardier varieties. There has been infinitely greater waste caused by fungus and insect pests than by lack of cold storage, and there is much improvement yet to be made through the exercise of greater care in preventing injuries, such as skin punctures and bruises.



Cooling a Car, Showing the Method of Attaching the Cold Air Blast to the Car

Picking and Packing Pears

W. E. Beman, Newcastle, Ont.

BY way of making conversation, I once said to a man with whom I was talking: "How would you go about picking and shipping a lot of pears?

He looked at me in surprise for a minute, then replied: "Why, I'd pick them or shake them down; then I'd put them into barrels, nail the head down good and tight, and send them to the nearest market. How else would anyone do it" I laughed and changed the subject, for I did not have time to go into details just then; but I thought that he surely must be an Irishman, and only accustomed to growing "apples of the earth," as the French call potatoes.

There is no fruit which requires more careful handling in every particular than the pear. In the first place I always instruct my men how to pick, for I have often seen the fruit pulled from the branch and tossed into the basket. This is almost as bad as the Irishman's way of shaking the tree.

Pears should always be turned up, instead of pulled off, and then laid carefully into the basket; for a pear is much easier bruised than an apple, and being very juicy will start to rot much more quickly.

WHEN TO PICK.

Perhaps one of the most difficult things in the handling of pears is to know just when to pick them. It is said that you can tell by turning a pear up, and if it parts readily from the branch it is ready to pick; but I have found that this is not always correct, for some varieties, if left until then, would be too ripe for shipping. In order to reach the market in good condition, a pear must be picked green. This is especially true when shipping in barrels, for pears ripen more quickly in barrels than in small ventilated packages.

It would be very difficult to give an infallible rule with regard to the correct time of picking pears. Some varieties need to be picked much greener than others. Experience is the best teacher on that point. In our orchards we judge a good many of the earlier varieties by their changing from a dark green to a lighter shade, but I know this is a very indefinite rule, and one would hardly become an expert in one season. Winter pears may be left on the tree as long as there is no danger of frost.

BARREL PACKING

While picking is in progress, when the baskets are full, they are emptied into bushel boxes made of slats. It is a good idea to plane off the sharp edges of these slats before making the boxes up in order to prevent the pears from being cut by them.

As soon as a load is ready, I draw it into the packing house and unload it, but I let the pears remain in the boxes until they cool off. If pears are packed as soon as they are picked, they will sweat. This will cause them to ripen far more quickly than they otherwise would.

Later, they are emptied on the table and sorted into three grades. The different grades are then put into barrels, boxes or baskets, according to the market to which they are to be shipped. A market where the fruit is all consumed at home usually calls for the smaller packages, while a market which reships to smaller points generally prefers the three-bushel barrel.

BARREL PICKING

In facing a barrel, pick out pears of uniform size, avoiding extra large ones, as these would spoil the appearance of the barrel when opened. Starting at the outside edge, lay the pear on its side, with the stem pointing to the centre, and continue in this way until the barrel is faced. Empty the pears in carefully out of the baskets, and shake the barrel gently every few minutes. When heading up the barrel, do not press as tightly as for apples. The pear is a firmer fruit than the apple, and will not give quite as much.

With regard to the grading of pears, it is very important that each grade should be as much as possible of uniform size, for if a few large ones are put into a barrel marked No. 1, it gives the buyer the impression that the pears are not a good sample, the large ones making the others look smaller by comparison.

British Columbia Apple Packs

R. M. Winslow, Vaucouver, B.C., Prov. Horticulturist

The four accompanying illustrations furnish an idea of a number of the most common commercial packs of apples used in British Columbia, which has become noted for the high quality of its boxed fruit. They are not intended to show prize-winning or exhibition fruit, but simply to illustrate the different packs.

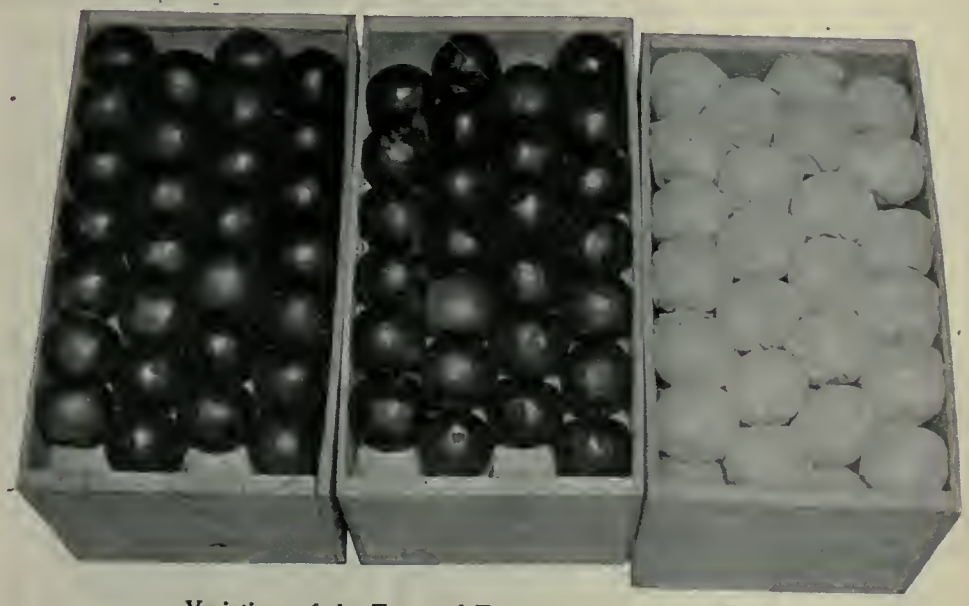
Illustration number one shows the common three and a half tier packs. The box on the left contains seventy-two apples, packed two and two with five apples in two longitudinal rows and four in the other two. This pack is, therefore, styled a two and two, four and five, seventy-two. The centre pack is exactly the same, but the longitudinal rows are five and five. This gives eight apples more to the box, making a total of eighty. The pack is styled two and two, five and five, eighty. In the pack to the right, two of the rows have six apples instead of five, giving an additional increase of eight apples, making eighty-eight. This is the largest pack styled three and a half tier.

The box to the right in illustration number two is one size smaller than that of the eighty-eight in number one. It therefore contains ninety-six apples, running two and two, six and six. The apples in the centre box are again one size smaller, and run therefore two and two, six and seven, containing one hundred and four. The apples in the left box run still one size smaller, with seven in each longitudinal row. The pack is therefore a two and two, seven and seven, one hundred and twelve.

The box on the right, it will be noted, shows a very neatly finished wrap, which will open out, giving the best impression. The shiny appearance of the paper results from putting the smooth side outwards. This should always be done. The two and two, seven and seven, one hundred and twelve, is a usual and desirable size in dry belt apples. The carload of Jonathans which won sweepstakes at the National Apple Show in Vancouver was very largely this size. The packs in figure two are all styled four tier.

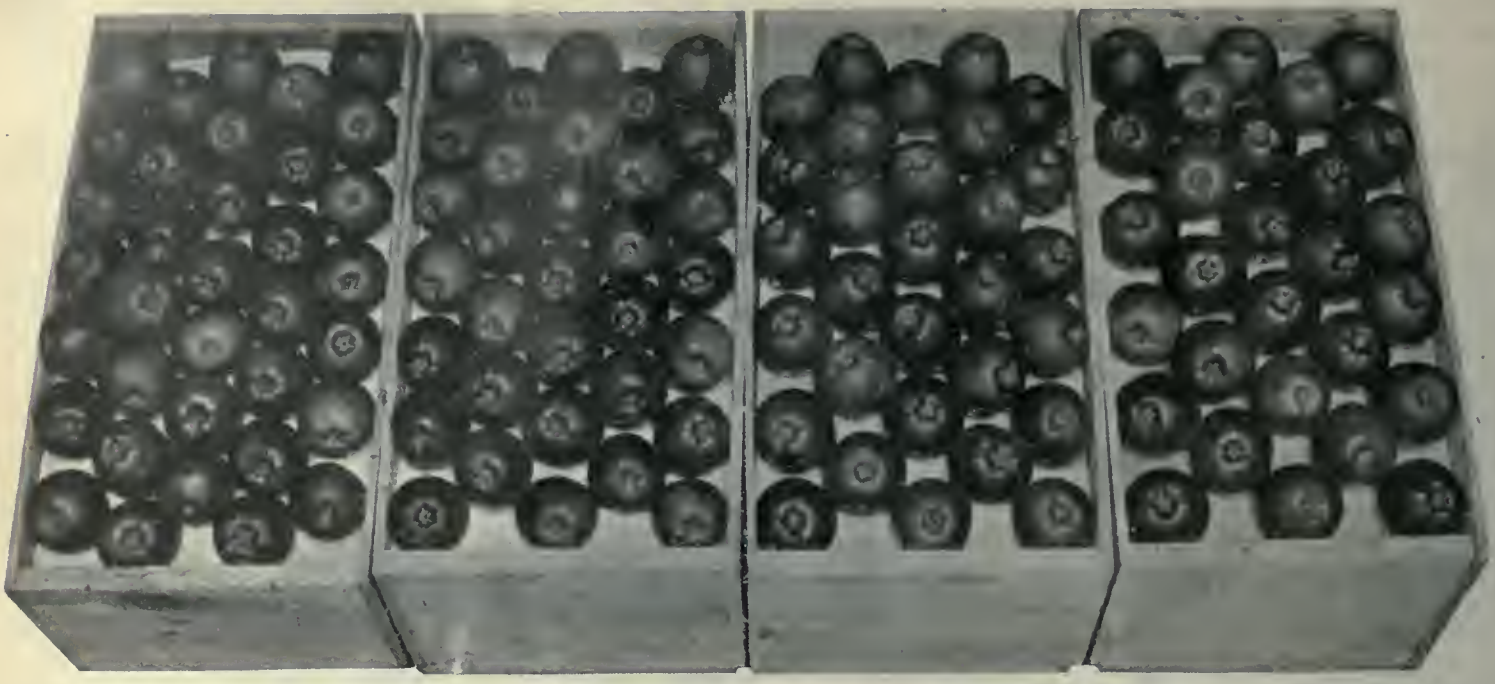
The packs on the right and left in figure number three are the famous two and three open packs, containing one hundred and thirteen and one hundred and twenty-five apples respectively. These packs are displacing the straight four tier one hundred and twelve and one hundred and twenty-eight to the box pack throughout the entire west. They contain practically the same number of apples, and while some objection is raised over their open appearance, this is not so serious with wrapped fruit as with unwrapped, and the carrying quality of the fruit is much superior. Both of these two and three packs have five layers of apples, but they are styled four tier because of the number. That

Common Three and a Half Tier Packs.—Fig. 1.



Variations of the Two and Two, Four Tier Packs.—Fig. 2.

Variations of the Famous Two and Three_Open Pack.—Fig. 3.



Four of the Principal Four and a Half Tier Packs.—Fig. 4.

on the right is read as a two and three, four and five, and that on the left as two and three, five and five. The pack in the middle is the smallest two and two —two and two, seven and eight, one hundred and twenty, being a size intermediate between those on either side of it. With very flat apples of the same diameter, it is possible to pack a two and two, eight and eight, one hundred and twenty-eight, but this is very rare in the Canadian box. All the apples in figures two and three are rightly styled four-tier, despite the fact that they run both four and five tiers deep. This makes the absurdity of designation by tiers apparent. The general adoption of diagonal packs is hastening the day when on all boxes will be marked the number of apples they contain.

The two and three pack on the right in illustration four is a five and six, and runs one hundred and thirty-eight apples to the box. It is the next step above the one hundred and twenty-five in figure three. The second box from the right is a two and three, six and six, which has thirty apples on the top layer, and therefore one hundred and fifty in the box. The next one to the left is one size smaller, it being a two and three, six and seven, containing one hundred and sixty-three apples, while that on the extreme left is a two and three, seven and seven, running one hundred and seventy-five. These are the principal four and a half tier sizes. The two and three pack, running seven and eight, contains one hundred and eighty-eight, and the two and three, eight and eight, contains two hundred, the two and three, eight and nine, two hundred and thirteen, and the two and three, nine and nine, two hundred and thirty-five. All packs one hundred and eighty-eight and over are styled five tier. All between one hundred and thirty-eight and one hundred and seventy-five are four tier. All from ninety-six to one hundred and twenty-eight are four tier, and all from fifty-six to eighty-eight are styled three and a half tier, while fifty-four down to thirty-six are three tier.

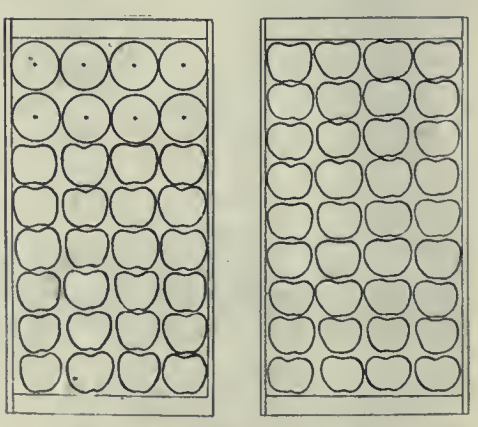
It will be noted that in the two and two tier packs, there is a uniform increase of eight apples per box, as the sizes decrease. In the two and three packs there is an increase in the number of apples of twelve and thirteen alternately. A study of these packs and the comments on them will make plain the principle of the diagonal pack.

Commercial Box Packing

Robert Thompson, Manager St. Catharines Cold Storage and Forwarding Co.

IN dealing with this subject I shall endeavor to do so from the commercial standpoint. We read and hear a great deal about the fact that in Ontario no great quantity of our fruit is packed in boxes . While this is true, there are reasons to account for it, the main one being that our people in Ontario and Quebec are not prepared to pay the extra cost of packages and packing. Another reason is that they get such large quantities of the best fruit in baskets and barrels that they do not require the boxes except on rare occasions. The fruit dealers as a rule do not encourage packing and shipping in boxes.

We must remember that western fruit has to be transported long distances, that it must be securely packed in strong packages, and that it is of such a nature as will stand longer delays. Ontario tender fruits, on the contrary, have to be placed in the consumer's hands in the



The "Straight Pack." Figs. 1 and 2
These packs give 128 and 144 apples to the pack

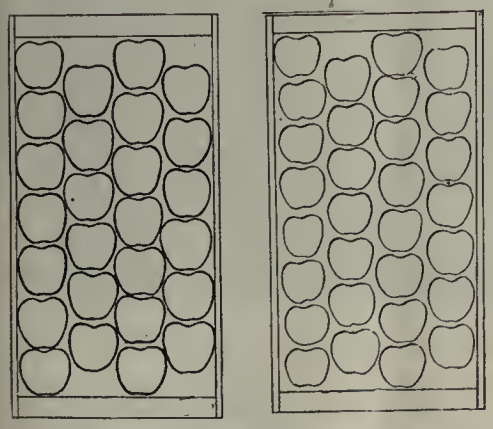
The "Offset" Pack. Figure 3

shortest possible time from the orchard. Of course, in the case of pears and apples this does not hold good.

For packing peaches in boxes the four and a half by eleven by eighteen inches is the standard size of box. The peaches are wrapped and packed in two tiers, the diagonal pack being the only pack that should be used.

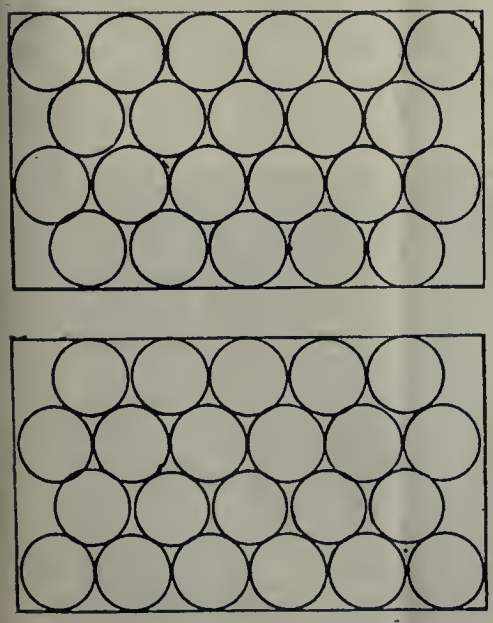
APPLE PACKS.

In packing apples there are three well defined styles of pack used, viz., the straight pack, the offset, and the diagonal. The straight pack should not be considered a commercial pack. Every apple is placed directly over another, and there can be no give to the package without more or less bruising. The apples must be almost shaped alike to pack and fill each row and tier. This pack is shown in Figures one and two. The apples can be placed either on their side or on end.



The "Diagonal" Pack. Figures 4 and 5
These figures represent 107 and 120 apples to the box.

The offset is shown in Figure three. Any sized apple can be packed in one of the many variations of this pack. Apples carry well and it is a good commercial pack for new beginners. The pack, however, that shows off the best and also carries the fruit in as good shape as any is the diagonal, as shown in Figures four and five. The first layer is placed as in Figure six and the second as in Figure seven. Each apple rests on the three below, and there is considerable give without any bruising. These three styles will allow of variations ranging into the hundreds.



The "Diagonal" Pack. Figs. 6 and 7
The upper diagram (6) represents the first and third layers, and the lower (7) the second and fourth. This pack gives 88 apples to the box.

The straight packed box will hold the least number of apples of a given size, and the diagonal the largest number, there being less space wasted. Figures eight and nine will show how the diagonal pack is started.

SECURING THE CROWN.

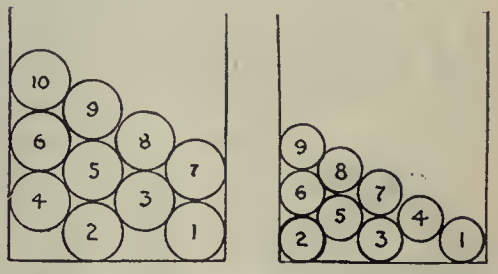
One important feature of a good pack is the crown or bulge in the centre. This is a bugbear for the beginner, as it is difficult to make the end rows come flush with the ends of the box, or slightly above them, and yet have the centre about an inch and a half higher. To secure a proper crown it is often necessary to turn part of the apples in the middle layer, or layers, flatwise, if being packed on cheek, or vice versa; yet skilful selection of the larger apples for the centre will usually make this unnecessary.

In the case of very large apples it is sometimes impossible to bring them low enough at the ends. It then becomes necessary to lay a cleat at each end under the cover. Frequent resource to this, however, is strong evidence of faulty packing. A crown of an inch and a half gives a bulge at top and bottom, when the cover is nailed on, of three-quarters of an inch, which experience has shown to be about right.

A greater bulge than three-quarters of an inch means too severe a pressure on the fruit; a less, too great danger of its becoming slack. In a properly packed box the apples in each layer should be so snugly fitted into each place that when the hand is placed upon them and an attempt made to move them back and forth there should be no perceptible slackness. Yet if there is no bulge, an otherwise perfect pack will soon become slack from handling and shrinkage.

TWO ESSENTIALS

Two essentials of a perfect pack are honesty and uniformity—that is, the apples in the middle or bottom of a pack should be just as good as those on top, and all perfect.



Start of the "Diagonal" Pack. Figs. 8 and 9
The diagram on the left shows the start of a 2-2 diagonal pack, and that on the right a 3-2 pack.

In packing pears the offset pack is the one usually adopted as shown in Figure ten. The box that should be used for wrapped pears is eight by eleven by twenty inches. The boxes should be made of one piece material and preferably of spruce or basswood, free from knots, using coated nails, as these do not draw out easily.

Pears should always be wrapped, as they carry much better. The time consumed in wrapping and packing the box of pears illustrated, containing about forty pounds net, will vary from eight to fifteen minutes according to the size of the pears and the skill of the packers.

A Fine "Commercial" Pack of Pears. Fig. 10

To succeed in obtaining fancy prices, the shipper must cater to special markets and be prepared to give careful attention to sending out good fruit and always well packed. Too many of our growers think that as long as the fruit is placed in a box that it is packed. The fruit in a poorly packed box would sell better in baskets or barrels.

of packing in boxes over barrels or baskets should not exceed in apples unwrapped twenty-five per cent. to forty per cent and in pears or peaches wrapped over unwrapped in baskets or boxes fifty per cent. to seventy-five per cent.—this estimate includes cost of paper.

Our company has been packing in boxes for eight seasons, using as many as eleven thousand packages in one season. The demand is increasing and we are getting better returns each year.

New Brunswick's Best Varieties Essentially Box Apples

A. G. Turney, Provincial Horticulturist, Fredericton, N. B.

NOW that the possibilities of apple growing in New Brunswick are being brought more prominently before the public, and a new and increasing interest in our apple lands is being created, it is of interest to note what we expect to be salient features in the coming development of the fruit industry in Canada. Our hopes of building up a large and profitable trade must be based upon the adoption of the box as the most profitable and suitable method of marketing the varieties in which we excel.

A. G. Turney

Our three leading varieties, as far as the export trade is concerned, are the Dudley, Fameuse and McIntosh Red. The edible and selling qualities of the last two varieties need no comment. With a proper system of distribution, hundreds of thousands of boxes of these famous and essentially Candian apples can be profitably grown in this province.

The Dudley is an apple as yet comparatively unknown outside of New Brunswick. In that excellent work, "The Apples of New York," it is described as a seedling of the Oldenburg, originating with J. W. Dudley, Aroostook County, Maine. A few years ago it was introduced by a Rochester nursery under the name of the North Star, and it is commonly known under that name in this province. It was afterwards found that the name had previously been given to another variety, and therefore the name Dudley Winter was retained for it. This latter name is misleading, as with us, even this far north, its limit of season is the end of December or a little later, and it is at its best from the first of October to the middle of November.

Between two and three thousand trees of Dudley are in bearing in the province and have proved to be quite hardy, vigorous growers and early and heavy bearers of medium to large fruits, practically immune to scab and most attractively striped and splashed with bright carmine and covered with light bloom. The flavor and eating quality is very good, and as an October and early November apple on the English market the Dudley should prove a big success and create a large demand. Hardly any trees of this variety are to be had from the nurseries to-day. As, however, every apple grower in the province is asking for them and enquiries have been received by the Department of Agriculture alone for over 10,000 trees, the nurseries are now making preparations to meet the demand. It is reported that in some sections of Nova Scotia the Dudley is replacing the Gravenstein.

EARLY VARIETIES

Many people are inclined to ignore the earlier season apples, pointing out that their perishability and poorer selling value do not class them with the winter varieties as money-makers . We must, however, consider that a variety like the Duchess or the Wealthy can be produced for sixty or seventy per cent. of the cost of some of the winter varieties, and surely this cost of production is as powerful a factor as the selling price in determining which varieties are most profitable.

The experience of the past few years entitles the earlier varieties to more attention. In New Brunswick I believe that their production for the European market will bring us, acre for acre, just as large if not larger profits than the winter varieties are producing elsewhere. Since Red Astrachan and Duchess apples sold last autumn in Winnipeg for two dollars twenty-five cents to two dollars fifty cents a box, which is equivalent to one dollar twenty-five cents or one dollar fifty cents f.o.b. St. Catharines to the grower, and Number Two Duchess sold at five dollars a barrel, we may well consider that with our all-water transportation from orchard to consumer and our pre-cooling facilities in St. John there may yet be many thousands of dollars brought in here in exchange for New Brunswick grown Duchess and Wealthy.

Ribston Pippin grows to perfection in the best apple sections, preferably top worked on some other stock, and may be worth growing extensively for the export box trade. Bethel, a winter apple of very fair quality and exceedingly attractive appearance, is finding favor here and may also prove useful for export. For the local trade, in addition to the varieties already mentioned, are the Bishop Pippin and the Alexander.

It will be seen that our best varieties are essentially box apples. The adoption

Sample of New Brunswick Apples. Notice the Yard Measure.
A Prize-winning Plate of Monster Bishop Pippins, at the Apple Show held in St. John, N. B., November, 1910
Average Size Blue Pearman Apple in Front.

The Orchard of Joseph Gilbertson, Simcoe, Ont., which last year produced some 800 bbls. of 85 to 90 % No. 1 Apples. The Apples are Graded and Packed in the Orchard

of the box as the apple package for New Brunswick will be easier, I expect, than it is proving to be in some other sections. We have never really got into the barrel trade, and consequently will have no prejudices of custom to overcome. Our newer plantings are being made with the full expectation of marketing their products in boxes. By the time these new commercial orchards are in bearing, it is more than probable that the box package will have gained steadily in favor and the tendency to use the barrel be correspondingly lessened.

The packs used most in boxing the apples for the last year's exhibition were the two and two and three and two diagonal face, the straight, and the two and two and three and two diagonal side pack, all but the latter being shown on the cover of this issue of THE CANADIAN HORTICULTURIST. I think that with the proper growing and thinning of the fruit on the trees, followed by careful grading we shall find that most of our apples will lend themselves to some form or other of the diagonal pack.

In conclusion, I would like to quote the opinion of Prof. J. W. Crow, of the Ontario Agricultural College, who, after attending our apple show last year, said in part in the December issue, 1910, of THE CANADIAN HORTICULTURIST: "A most striking feature was the remarkably high color of the fruit. If the fruit exhibited at St. John is a fair sample of what New Brunswick can grow, it is safe to say that Ontario comes in second in the matter of color. Of course it must be borne in mind that the varieties principally grown in New Brunswick are the highly colored fruits, but even in these varieties New Brunswick fruit would compare very favorably with anything produced in Ontario." The exceedingly high color and natural beauty of appearance of our most successful varieties greatly enhance their value as box apples.

Harvesting and Marketing the Apple Crop

P. J. Carey, Dominion Fruit Inspector, Toronto

A great awakening has taken place among the fruit growers of Ontario along the line of the better care of orchards. Many now realize, after an experience covering nearly half a century, that the methods of both growing and handling their fruit have been faulty in the extreme. Not until this late day, however, has it dawned upon them that the fruit industry of Ontario is really the business of the growers after all. As a result of the pronounced movement that is taking place in general orchard management, there will be a vast improvement in the quality of the fruit hereafter packed. A few suggestions, therefore, along the line of the proper harvesting and packing of the grown product should be timely. A large proportion of the fruit is in the hands of cooperative asociations. Growers are interested, therefore, in picking their own fruit, and hence the necessity of a little schooling along that line.

PICKING FROM THE TREES.

The part of the work most objectionable to the grower is the picking of the fruit. This objection could be overcome to a large extent if the proper facilities for doing the work were at hand, such as good ladders and baskets. In the past this work was done entirely by the outside dealer, and the grower not only did not assist in the work, but in many cases did not even visit the orchard where the packing was being done. This has helped to cause the distaste for the work.

The proper ladder calls for two requirements, strength and lightness. There are many makes on the market, including some good ones . Perhaps the most popular, in sections where apples are largely grown, is the split cedar. The ladders should be painted and kept under cover when not in use.

There are a number of different styles of baskets, but it is generally conceded that the half oval wicker basket, with solid handles, is the best all round basket. The picking bag is used in some sections. It is the most rapid method of gathering the fruit, but it has the fault that it bruises the more tender varieties, unless great care is taken by the operator.

PACKING.

Where central packing houses are not used, and where the packing is done by the growers or travelling gang, much the better way is to pack in boxes or crates. Later, remove these to some building, and there re-pack and finish for shipment. I hope that the time is not far distant when every orchard of any importance will have in or near it a good-sized building (a cheap one will answer the purpose) where the fruit can be taken and properly packed in dry, clean packages. This method has the advantage of allowing the fruit to cool off before it is packed. Besides being a storage for empty packages and picking and for packing utensils, such a building can be utilized for other purposes.

Perhaps the greatest abuse in the art

A British Columbia Packing House, The Farmers' Exchange, Kelowna, B.C.—Notice the Chinese Packers on the Right.

of apple packing is that of over-filling. It has taken us years to discover that perhaps seventy-five per cent. of our apples have been damaged more or less by over-pressing. The exporters having the fear of "slacks" before them, hoped to meet the trouble by heaping up the fruit in the barrels and then crushing it down, until in many cases every specimen in the barrel was either split open or bruised out of shape. This method of packing makes the worst form of slacks.

The west is now taking a large percentage of our Ontario apples, and the dealers are crying out against bruised apples. It will be hard for the export packers to get away from their old habits, but the trade is now demanding it. If the fruit in the barrel is well settled down by thorough shaking and filled level with the top of the barrel, or even a little lower, it will carry safely to any market where our apples are offered for sale.

Over-filling should also be avoided in box packing. A bulge of from one-half to three-quarters of an inch is quite enough for a box of apples. Solid filling in box packing is the first requirement, so that there will be no falling-in of the face apples when the box is opened.

QUALITY OF PACKAGES.

Growers should never endeavor to make a saving by buying poor packages. It does not pay. Fancy fruit never looks fancy in a dirty old barrel or box; a good, well-made, clean package is to the fruit what good harness is to the horse or a good suit of clothes to the man.

Nova Scotia Growers Improve Their Methods

G. H. Vroom, Dominion Fruit Inspector, Middleton, N. S.

A GREAT improvement has taken place during the past twenty years in the fruit industry in the little but noted fruit-growing province of Nova Scotia, down by the eastern sea.

G.H. Vroom.

The annual output of apples has increased from less than fifty thousand to over eight hundred thousand barrels. This increase is attributed by most people to the increased acreage of mature or bearing trees. This is only partially the case. Improved methods of care and cultivation must be taken into consideration. There are orchards in Nova Scotia, producing large crops of choice apples, which were thought worthless, or nearly so, twenty years ago. This has been brought about by careful and proper pruning, thorough spraying, and intelligent cultivation. Thus while many thousands of young trees have been planted and have come into bearing, it is not fair to say that the whole increase in product is due to young trees alone.

Spraying is practised in a great majority of the orchards. There still remain a few who do not believe in spraying, but their number is rapidly growing less. Every year sees new converts to spraying.

Lime and sulphur was the spray most generally used in the Annapolis Valley this year. It proved fairly satisfactory. Bordeaux has been in general use for some years, and it has given general satisfaction where it has been intelligently and thoroughly applied. Experience has proven that lime and sulphur does not injure the fruit by russetting, and that it is a good fungicide.

FORMER METHODS.

When a car of fruit was to be loaded twenty years ago, the custom of the country was to run it on a siding. The apples were then drawn by teams from the farmers' cellars. The operation took from ten to twenty-four hours, according to circumstances.

To-day we find frost-proof fruit houses all along the railway, numbering in all eighty. These houses are built beside the railway siding. To load a car with apples is a matter of twenty minutes to half an hour. In less time than it formerly took to load a car the apples are now placed at the ship side on the wharf at Halifax. These fruit houses have a capacity varying from six to twelve thousand barrels.

COOPERATIVE METHODS SPREADING.

One of the greatest steps in advance is the organization of cooperative fruit packing associations. Of these there are twenty-two, about half of which own their own fruit houses. Fully one-quarter of the entire output this year will be controlled by these cooperative associations. A central association has been

organized, and all the business will be directed by this association.

PICKING AND PACKING.

In the matter of picking and packing the fruit there has been a marked improvement. The up-to-date careful orchardist will not allow hired help to handle his fruit roughly at any stage of procedure. Ladders long enough to reach to the top of any tree in the orchard and light enough to rest on the outside of the branches are used. Baskets constructed especially for the purpose are used for picking. Some of these are made of canvas and some of splints. In either case the rim at the top is placed on the outside so that the apples will not be bruised when the basket is emptied.

The barrels are filled and the head put in just tight enough to ensure safe delivery at the fruit house without bruising the fruit.

The packing is carried on in the fruit house by a gang of men, and in some cases by women, who are employed to do the grading or sorting. These people are under a foreman, whose duty it is to have a general oversight of all that takes place in the fruit house. This staff of help is divided to suit conditions. One man faces the barrels, another puts the heads in, another nails and brands them.

The modern fruit house has a room especially for packing. The apples are brought in from the main building and packed and put back into the main building again read for shipment. The advantage in having a separate room is that the help can work comfortably and consequently turn off more work than they could if they were obliged to work in a very cold room.

The fruit is carefully dumped on a packing table and then the grading begins. This table is padded on the bottom and sides to prevent bruising the apples. These tables vary in capacity from five to ten barrels, and are just high enough to permit a person to stand and work comfortably. They are wide enough to allow the apples to be easily reached by the people who do the sorting. As each basket is emptied the barrel is carefully shaken, and when level full a false head, padded, is put on and the barrel well racked down. This gives room for a layer of apples to be put on or in other words, the barrel is tailed up before the head is put in.

Care is taken in nailing the barrels. The bilge hoops require small nails, and if these go through the staves they are clinched on the inside. Barrels are nailed before they are filled. Liners are used for the heads, the same as are used for flour barrels, only enough nails are driven in to the hoop to hold it in its place.

MORE BOX PACKING

Box packing is on the increase. A few orchardists are packing their high-class and more tender apples in boxes, and find that it pays, as the increased prices realized more than overbalance the cost and labor of packing in boxes.

Floral Notes for September

Wm. Hunt, O.A.C., Guelph, Ont.

THE first light autumn frosts that usually make their appearance about the first or second week in September, are but the heralds that warn the plant lover to prepare for the heavier and more damaging frosts of later autumn. It is well to make sure of any very tender plants out of doors by placing them in safe temporary quarters before the appearance of even the early light frosts mentioned.

Cuttings of plants such as coleus, iresine, ageratum, salvia, lobelia and heliotrope should be taken before the nights get chilly and cold. Cuttings of geraniums can usually be left a week or two later. Even these, however, are better when taken as early in September as possible, so as to get good root development before cold weather sets in.

Sharp, clean pit or lake sand is the best material to root cuttings in. Good drainage is also very essential to be successful. A temperature of from sixty-five to seventy-five degrees with partial shade from hot sun are good conditions for rooting cuttings in. A window facing the east or west is better than a window facing directly south, unless the cuttings in the last named are shaded from the hot sun at noon day.

Petunias, these popular summer border plants, make splendid pot plants for the window in winter, if managed properly. About the first or second week in September after the plants begin to look shabby in the border, cut the top growth well back, leaving about from four to six inches of the lower part of each shoot near the root. If the weather permits, leave the plants in the border for a week or ten days until the young growth starts, or they can be dug at once. A slight frost does not injure petunias.

Dig up the plants carefully, with a little soil attached to the roots if possible. It is a good plan to water the plants well a short time before digging them. Pot the plants carefully into small three or four inch pots, according to the size of the plant, in rather sandy potting soil. Water them well once and set them in the window. Keep the soil moist but not soddened until they start into growth.

In five or six weeks' time, when the top growth is about six inches in length, repot the plants into a two or three size

An Apple Warehouse adjoining the Railway at Berwick, Nova Scotia. One of about Eighty in that Province.

Petunia in Flower Six Weeks after Potting

larger pot, being careful not to disturb the roots when repotting them. Give them good, rich potting soil for this potting, and nearly an inch of broken flower pot, coal cinders, gravel or lump charcoal in the bottom of the pot for drainage. Shade the plants from the hot sun for a day or two, and then place them in a sunny window, temperature from fifty degrees to sixty-five degrees, away from dry, artificial heat. Spray the plants once or twice a week with clear water on fine days, and keep the soil well moist but not soddened with water.

Petunias do not require a high temperature to grow in, and they strongly object to very dry, over heated atmospheric conditions. Plants treated as described should be in flower before Christmas and continue flowering on until quite late in the spring, or they will make good stock plants to furnish a supply of cuttings during the winter.

PETUNIA PLANTS FROM CUTTINGS

Although petunias are usually grown from seed and treated as annuals, they are perennials and can be grown easily from cuttings. Cuttings of petunias can be taken any time now about the middle of the month, or whenever young soft terminal growth can be obtained. In taking cuttings, the soft young shoots that have few if any bloom buds on should be made use of. It is of no use taking the hard part of the base of the flowering growth for cuttings. If these root at all they take a long time to develop roots, and even then they never make as good thrifty plants as do cuttings of softer growth.

The best kind of cuttings are obtained from the young, soft green shoots that can usually be found down at the base of the growth near the roots. The single and double flowering types can be grown from cuttings. Place the cuttings in some sharp clean pit or lake sand—or even wash sand from the road side—in pots or shallow well-drained boxes, and place them in the window in partial shade. Keep the sand well moistened. In five or six weeks they should be ready to pot off singly into small two and a half or three inch pots. If repotted into larger pots later as required, they will make fine large flowering plants by early spring, and also furnish a supply of cuttings for rootings in March and April to make plants for flowering out of doors in the summer. The old plants of petunias cannot, as a rule, be kept over successfully for the second summer, so it is best to raise young plants from seed or cuttings each year.

CARE OF ROSE BUSHES

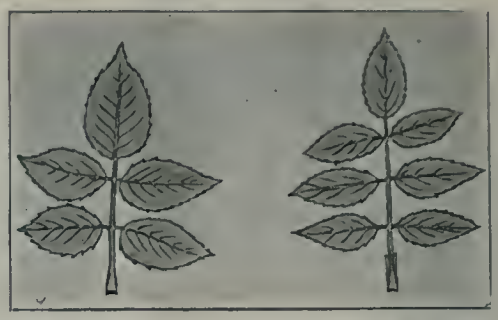
Care should be taken to remove entirely all briar or manetti growth from rose bushes before the leaves drop, as it is very difficult to detect the wild sucker briar or manetti growth from the real rose growth after the leaves have dropped. If this growth is cut away now, it is not so likely to injure the plant as it would if done in early summer when the bushes are just coming into flower.

The method of detecting the briar growth from the real rose growth is to examine the leaves. If the leaves have only five roundish lobes or sections on

Petunia Plant dug up and Potted

them as shown in figure one, it is true rose growth. If, however, there are seven or more lobes or sections on each leaf (figure two) and the lobes are long and narrow, it is a sure indication that the growth that produces these leaves is either wild briar or manetti.

It must be borne in mind, however,



ROSE LEAF FIG. 1 BRIAR LEAF FIG. 2

that a few of the Rugosa or Japanese roses as well as many of the moss roses have seven or more lobes to each leaf. On the ordinary hybrid perpetual rose growth, however, there are seldom more than five lobes to each leaf. It is very difficult even for an expert rose grower to detect the difference sometimes, unless a close examination is made as suggested. As most roses are budded or grafted low down on the briar or manetti stock, it is absolutely necessary to go right down to the base of the briar or manetti growth to cut it off. Cutting off the top is only a temporary and partial relief, and results in an increased stock of wild growth the following season. Many people allow this briar growth to grow on until it eventually kills out the rose growth proper, leaving only a wild briar instead of a rose bush.

If rose leaves start to drop from black spot or rust the leaves should be raked or picked up every day and burned. This will help to prevent the recurrence of this disease another season. Spraying the bushes with Bordeaux mixture is a good remedy for black spot or rose rust.

Stop watering roses after the first week in September unless the weather is exceptionally dry and hot. Deep cultivating should be also discontinued. Cultivating only to keep down weeds is all that is necessary at this season. Withholding water and discontinuing cultivation helps to check growth, and hastens the ripening of the wood. Well ripened wood withstands the severity of the winter much better than green sappy growth. Much can be done in the way mentioned to assist the proper ripening of the wood.

If a white mildewy substance appears on the leaves dust them in the early morning or late evening with fine flowers of sulphur, or spray with a weak solution of Bordeaux mixture, diluted with about double the quantity of water usually used for the potato blight. Mildew unless it is unusually bad, does not injure roses much at this season of the year.

Always get the advice of an experienced florist before engaging a carpenter to build a conservatory.

Cut off all flowers from house plants as soon as they begin to fade.

Indoor Culture of Dutch Bulbs

Rev. Jas. Fletcher, Whitby, Ont.

DUTCH bulbs possess many advantages for indoor culture. They are inexpensive and of less trouble than other house plants, as they can be stored away in the cellar when not in bloom. They stand cold which would destroy other plants. They can be depended upon to bloom when other plants are scarce, and in beauty and fragrance they are not excelled by flowers of any other class.

CULTURE

Their culture is simple, but there are certain principles which must be observed, or failure will be the result. They must have suitable soil if you wish to have bulbs for future use. Some of them as hyacinths and narcissi, when grown in water give good bloom, but the bulbs are of no use afterwards. The soil usually recommended for potting bulbs is a compost consisting of leaf mold, sand, and well rotted cow manure in equal parts. Good garden soil, well enriched, answers the purpose very well, but there must be no fresh manure in it or it will rot the bulbs.

After blossoming is over the bulbs may be put away in some retired place, secure from frost, and sparingly watered until the foliage has died down, after which they had better be planted in the flower garden, and fresh bulbs used in the house for next year's bloom.

For the window, tomato cans in which holes have been made, or boxes, are better than earthenware pots, as they give more root room, and are not so likely to dry out rapidly in our heated rooms.

DRAINAGE

To ensure good drainage, place an inch of broken crockery, pebbles or similar material at the bottom of a five inch pot, cover with moss or other material to keep the earth from clogging the holes, fill up with potting soil, and place the bulbs in the soil, so that the crowns are about level with the top. Eight or ten crocus, four or five tulips, two or three hyacinth or narcissus bulbs may be placed in such a pot. Then water well and let drain before putting away.

The most important part of the treatment is to place the pots in a cool, dark cellar, and keep them there until the roots have completly filled the pots. This will be from six to ten weeks for crocus, tulip and Dutch hyacinths. Roman hyacinths and narcissus do not take quite so long. Do not try to hurry them by bringing them to the light or heat, as they will resent it by giving you poor bloom, or none at all. When roots appear at the bottom of the pot they are ready to be taken up.

If the cellar is moist, they will not need watering again until taken up; if dry, water sparingly. If the cellar is damp, it is not suitable, as they are likely to rot. The coolest place you can find is the best place for them. They will stand light frost without serious injury.

Wherever kept they must be gradually accustomed to the light, placing them for several days in partial shade, and not bringing them to the sunlight until the foliage is strong enough to endure it. Most living rooms in the winter are too warm for the successful growth of bulbs; our sleeping rooms suit them better. The cooler they are kept the finer will be the bloom and the longer it will last. Late planted bulbs do not require so long a time in the cellar, as roots are formed more rapidly. By careful management a continual succession of bloom may be secured from Christmas until Easter.

A Wild Flower Garden

R. S. Hood, Galt, Ont.

I enclose you a snapshot of my wild flower garden. It is situated on the north side of the kitchen. The house projects eight feet past the kitchen, which makes a very suitable place for it as it gives a north eastern exposure. The bed is eight feet wide by sixteen feet long. It is filled with plants brought from the woods and swamp, and planted by myself. It has taken some years to get the collection together. It is and has been a source of pleasure to others and to myself, and not by any means the least of the pleasure is the fact that it makes a nice corner at our home.

Mr. Hood's Wild Flower Garden

All the plants are strong and healthy, and have large foliage. They have taken very kindly to their new home. Occasionally during the summer I give them a treat in the shape of a little stimulant, to which they respond very generously.

There are over two hundred trilliums. Their blooms were exceptionally large last spring. Included also are five varieties of ferns (one fine specimen of the maiden-hair variety), three varieties of lady slippers, thirty-five of the large yellow slippers, twelve of the small yellow variety, and twenty one of the tall or showy slipper. The top of the rack or slip of several was a beautiful shade of pink, others white. One of the showy variety had three flowers on one stem, six had two, and the rest one each.

There are thirty-eight lilies, ranging in height from two feet to six feet. One has twelve dear little graceful blooms on it. Others have from one to ten. I have also several plants of Jack-in-the-pulpit, blood root, violets, hepatica, false Soloman seal and May apple. Every one to his or her own taste, but the little wild flower garden is my favorite.

When spraying, do it thoroughly.

Horticultural Possibilities of the Far North. A Yukon Garden Photographed in August

An Unappreciated Flower

By Mrs. Annie L. Jack, Chateauguay Basin, Que.

A good many years ago the editor of The Rural New Yorker gave me seed of Pyrethrum that he valued very much as a perennial. In spite of ill usage and overgrowth of shrubs near by, so tenacious are they that plants from this seed continue to blossom, and give their flowers in June in profusion. But the newer varieties, and careful treatment, have been a revelation to me, for they are perfectly hardy and invaluable for cut flowers, while greatly improved in texture and shades. Nearly every year sees some new development, the result of skilful raising, and they have the advantage of growing well in shaded places, if the soil is kept fertile.

The pyrethrum grows in any good garden soil, though a rich loam is preferred in order to secure size and brilliance of bloom. The flowers are bright and showy, and being borne on long stems are very suitable for vase decoration, while the foliage is finely cut and deep green. The beautiful double varieties that have been developed of late years remind one of a chrysanthemum, and they are at their best blooming during the months of May and June. As they require no winter protection, and if cut down in June, and kept watered, will make new growth and blossom again in autumn, they are sometimes called the "poor man's chrysanthemum."

Surface rooting plants, and liable to be injured by hot sun, they are materially aided by a mulch of anything that tends to conserve moisture. In early spring the plants may be propagated by dividing into small pieces and planting out in prepared soil, or if grown from seed will give plants that will flower the following year, but from this method the quality and color cannot be depended upon.

Among named double varieties for the amateur who cares only for a small collection of the best we have "Aphrodite," pure white; "Lord Rosebery," carmine scarlet, a most dazzling color; "Magician," bright pink—yellow tipped; "Regulus," purple carmine, and "Solfaterre," a creamy yellow.

Of single sorts, sometimes called "colored Marguerites," there is "Lord Milner," a cherry rose color; "Langport," scarlet; "Decoration," a flesh pink; "Devonshire Cream," as its name would indicate, is a rich cream color; while "Princess Marie," "Gwendoline," and many others are pure white. In fact among a hundred varieties now advertised, it is difficult to select the best half dozen for a limited border, but good seed will increase the variety of coloring and give some choice sorts.

The flowers of the pyrethrum will stand storm and shade better than many other perennials, as the stems are stiff and yet wiry, but as a safeguard a mulch in summer and a covering of coarse manure after hard frost in late autumn, will ensure against sudden changes of temperature so detrimental to our perennials in this climate.

If planted in a border among other tall growing herbaceous plants, the pyrethrum does well near the front, placed at even distances, and in this way, when the flowering season is over, it can be trimmed off, and even if not giving a second supply of bloom there is a neat elegance in the finely cut foliage.

Tulips From Seed

Can tulips be grown from seed to advantage, and if so, when is the best time to use the seeds? I have some fine seed pods saved from my best purple, tall growing stalk. I had some nearly three feet high, far above all other sorts. Would a new kind be apt to spring from the seed?—H. L.

Tulips can be grown from seed, but not to advantage, as our climate here is not suitable for the propagation of the tulip, either from seeds or offsets. Tulips grown from seed usually give some variation in color or habit from the original type. It is not wise to allow tulips to seed. The seed head should be cut off as soon as the blooms have dropped. Allowing them to produce seed weakens the bulb.—Wm. Hunt.

Fall Care of Evergreen Plants

Wm. Hunt, O.A.C., Guelph, Ont.

About the middle or end of September, according to weather conditions, evergreen plants, such as Japanese Euonymus, Oleander, Aucuba Japonica, Myrtle and Bay trees, may be stood under the shelter of a verandah or under trees, or in an open shed. The early white frosts do not injure these plants, as they are almost hardy in their nature. By giving them the shelter mentioned, it is quite possible to keep them out of their winter quarters until quite late in the fall, thus giving the growth a chance to harden—a very necessary matter in the successful wintering over of these plants. Do not hurry them into their winter quarters too early, and do not go to the other extreme and expose them to more than five or six degrees of frost without some slight protection.

These plants are very largely used in Holland, Belgium, Germany, and other countries, for temporary outdoor decorative purposes in summer. Deep pits, or greenhouse pits, are sometimes built expressly to keep these plants in during winter, and are usually built without facilities for artificial heating, as only a few inches of the structure, beyond the covering of glass and boards, is exposed above the ground level. This part of the structure is covered with thick mats in severe weather. A structure of this kind with provision for temporary heating to suit our more rigorous climate could easily be made where a collection of these plants are grown, as they occupy a lot of useful space in an ordinary greenhouse.

It is not generally known that the growth of the Oleander is of a very poisonous nature. Great care should be taken to prevent any person from eating the leaves or growth of the plant. This objectionable feature detracts from the value of this popular decorative plant.

Trouble With Hydrangea

Last spring I had a present of a very fine house hydrangea which was covered with bloom. In two or three weeks it began to wilt and all the bloom dropped off. Was it for the want of more water, or more fresh air? We kept it in the parlor after the bloom fell off, and then I planted it out in the garden. The plant seems quite healthy now. I have repotted it. Please say how to keep it through the winter so that it will bloom in the spring.—W. E., Toronton, Ont.

The house or pot hydrangea is of a half-hardy nature, and should be kept partially dormant during the winter. The plant mentioned should be kept out of doors during nice weather until there may be possibly five or six degrees of frost. It should then be taken into the cellar or into a cool room in the house, temperature 40 to 45 degrees, and kept there during the winter. If the cellar is dry, it may require two or three slight waterings during the winter. The soil should never get dust dry. The top growth should be sprayed or sprinkled with water about every two weeks to keep it fresh. I have known some people to wrap the top of the plants slightly with burlap and sprinkle the burlap occasionally. This sprinkling is to keep the growth from shrivelling or drying up. I am inclined to think that the cause of the plant you mention dropping its flowers and foliage was due to gas fumes or to the dry atmosphere of the house.—Wm. Hunt, O. A. C., Guelph, Ont.

Hollyhock Leaves

Can you tell me what to use to prevent the leaves of hollyhocks drying and falling off?—W. B., Windsor, Ont.

The plants mentioned are probably attacked with what is known as the Hollyhock Disease. The disease is of a fungus nature (Puccinia malvacearum). The best remedy or preventive is to spray the plants early in the season with Bordeaux mixture the same as used on potatoes. As a preventive all diseased leaves should be picked off and burned, also the stems of the old plants in the fall. It is best to plant in a fresh place in the garden, if possible.—Wm. Hunt.

Annual flowers are easily grown.

The Vegetable Garden of Mr. Justice where Two Crops of Celery are Grown

Harvesting Vegetables*

A. G. Wooly Dod, Calgary, Alta.

ABOUT the beginning of September the tops of onions should be broken down with the foot. This will assist the bulbs to ripen. In about three weeks pull them and place them in double rows, stalks outward, and leave them to dry. If the ground is dry they will not require turning, but if the ground is wet, or there is any rain, it may be necessary to turn them. On frosty nights a few sacks should be thrown over them to protect them from frost. These should be removed in the daytime.

SORTING

As soon as the tops are dry sort out all those with thin necks and tie them in bunches and hang them up in a cool, dry place. If care is taken to hang up only those with thin necks, they will keep in good condition all winter.

It will be found that there will be a good many bulbs with big necks. These should be cut off, and the onions laid on a rack in heaps to dry a little longer, and then stored on a dry floor, not too thickly, or they will heat. These big-necked ones will not keep very long, and should be used as soon as possible. If stored in a cool, dry place, however, they will keep for some time.

PULLING CARROTS.

Carrots can usually be pulled, but if they are very firm in the ground, it may be necessary to loosen them up first with a fork. Take as big a bunch as you can hold in your hand and cut off the leaves with a sharp knife close to the crown; if you happen to cut the carrot in doing this it will not do any harm, as it will keep just as well. The roots may now be piled in a cool, dry place, where, if they are not too warm, they will keep well into next summer. If kept in a too hot or light a place they will sprout and spoil. A little frost will not hurt them, as they are better kept too cold than too warm.

Beets require handling with more care. Cut off all the leaves, but do not trim the roots. Be careful not to cut into the crown, or they will bleed and become soft. Store them in a cool, dry place, but they must not be allowed to freeze

Parsnips are about the hardest vegetable to pull, as their roots go very deep. I find a good plan is to dig a trench with a spade as close to the crown as possible, and then bend them over towards the trench. When pulling, wring with both hands. Pull a good many at once, and lay each one on the ground till you have enough to collect in bunches. Then take a bunch in one hand and cut the leaves off in the same way as with the carrots. The roots should be piled, and covered with sand, or they will soon become limp and useless. If preferred, they may be left in the ground all winter, as no amount of frost will hurt them, and they will be found in much better condition in the spring than those that have been stored.

I would not attempt to store ordinary turnips, as they never keep well, but Swedes can be kept a long time in a cool place. These should have all the small roots trimmed off with a sharp knife, and the leaves removed. Close trimming the roots will not damage them in the least, as they will not bleed like beets do.

CELERY.

Celery is better not trimmed at all. It should be stacked, heads and tails, and each row covered with sand, which will keep it from wilting. These vegetables should be stored before any danger of severe frost, with the exception of the parsnips, which, as stated, may be left out all winter. If your corn and marrows are all picked before they freeze, they will keep several weeks in a cool place.

*Extract from a paper read before the Calgary Horticultural Society.

Growing Two Crops of Celery

Mr. J. Justice, Barrie

The process is very simple, and also very profitable. The soil is well manured with thoroughly rotted stable manure in the fall, dug deeply and left rough. In the spring it is well pulverized with a digging fork and nicely smoothed. This is done just as soon as possible in the spring and drills of spinach sown four feet apart. I make the drills with an eight inch hoe drawing it flat so as to get as wide a drill as possible. The seed is scattered in this and raked in. This crop is immense.

Between the spinach rows I sow a little fertilizer and work it in with a narrow scuffler, going over the ground twice before setting out the celery, which is planted on the level, about the middle of May, or later, oftener later than otherwise. This crop is blanched by hilling up, and is ready for market about the middle of July. The trenches formed by hilling the early celery are fertilized, prepared and planted with late celery. I had some loss this year by the celery running to seed, but it does not often happen. I would be very grateful if some one would tell me how to prevent this.

As soon as the spinach is cut the roots and remnants are dug in and rotted before the earth is needed for hilling.

Insects Not Injurious

I am sending you a bug that has been very numerous this summer. The Guelph insect experts call it Lady-bird Beetle and say that it is a very harmless bug, feeding on aphis . I find it extremely destructive, feeding on plant life, sweet pease and even grass, and would like to know what to do to prevent their destructive inroads. They may feed on aphis, which is invisible, but there are plenty which they do not destroy. They even go way out to the ends of the tendrils.—G. M. C., St. Thomas, Ont.

The insects in the envelope from your subscriber at St. Thomas are specimens of two common Ladybird Beetles of the genus Coccinella, namely, C. 9-notata and C. trifasciata. These insects, of course, were not in any way destructive to the plants. They are extremely beneficial . It is probable that plant lice were present and were the cause of the injury. Sweet peas this year have been attacked in certain districts by the destructive pea aphis, and where this insect has been present, Ladybird Beetles have been numerous and have done excellent srvice in reducing the numbers of the aphids. — A. Gibson, Assistant Entomologist, C. E. F., Ottawa.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
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Average each issue in 1907, 6,627
" " " " 1908, 8,695
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Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

OUR NEW NATIONAL NOTE

There has never been a time when we could have issued just such a special packing number of The Canadian Horticulturist as this. A basic change has taken place in the condition of our fruit industry within the past one to two years. Its influence may be noticed in the fruit districts from the Atlantic to the Pacific.

Within that period, as Mr. Vroom's article shows, cooperation has taken a great leap forward in Nova Scotia. Its beneficial effects are being felt. Better methods of packing are being introduced, new apple warehouses are going up, box packing is increasing, salesmen representing the cooperation movement have been sent to the western provinces for the first time, and more rapid progress is expected during the next two or three years than has ever before been known.

New Brunswick is just discovering herself. Within the past year she has held her first provincial horticultural exhibition, at which her growers amazed themselves by the display of exceptionally fine fruit they made. They now have a vision of the great fruit growing possibilities of their province and are setting to work in a systematic, careful yet enthusiastic effort to develop them properly.

Quebec is progressing more slowly, but none the less surely. The new, well planned nurseries that have been established within a few miles west and south of Montreal are an outcome of the rapidly increasing demand for hardy trees suitable for the climate of Quebec province. The growers are beginning to concentrate their efforts on the growing of two or three of their best varieties of apples. For these the use of the box is becoming increasingly popular. The provincial government and Macdonald College are conducting educational work on a more comprehensive scale than ever before attempted, and their efforts are being appreciated.

In Ontario there has been almost a transformation. Work conducted in demonstration orchards within the past year revealed the fact that there were many thousands of neglected orchards that might be made extremely profitable. Farmers have taken hold with a will. Hundreds of orchards have been renovated, a million-dollar company has leased and bought outright several thousand acres of the best orchard lands, the membership of the provincial fruit growers association has increased by fifty per cent. within the past nine months—it numbering now over one thousand three hundred—and many hundreds of thousands of apple trees have been planted in new orchards. The victory of the fruit growers over the railway and express companies, which has forced the latter to reduce their rates and to grant numerous other much needed improvements in their service, has helped to encourage more extensive shipments of tender fruit to the west and thus to increase production. Trial shipments have demonstrated the possibility of developing a trade in peaches with the Old Country. New tender fruit districts, more particularly adjoining the southern part of Lake Huron, have been further developed and tested. Cooperative methods have been greatly extended. The future is pregnant with promise of better and greater things to come.

British Columbia fruit growers have never lacked optimism or aggressiveness. These excellent qualities have justified themselves within the twelvemonth by the holding of a national apple show that surpassed even the great apple shows that had been held during the previous few years across the provincial border to the south. The fact that the chief award was captured by British Columbia fruit in open competition with the best that the fruit world of America at least could produce has given a stimulus to fruit growing in that province that nothing else could.

And thus the whole country has been affected. As a result of their increased production the fruit growers of the different provinces have been brought into an open competition with each other, particularly in the markets of the west, never before known. This has forced them to discard antiquated methods in favor of the best used by their competitors. The resultant evolution is still in progress.

Now national issues are forcing themselves to the front. An investigation of the extent and possibilities of the fruit industry is being made by the Dominion Government and arrangements for another Dominion fruit conference are being made.

These evidences of progress, with their promise for the future, have led us to endeavor to do our part by publishing this our first Special Packing Number. We hope that our readers will like it. We thank those who have assisted us, both our contributors and our advertisers, and we trust that the year to come will show even greater progress and that a year from now The Canadian Horticulturist will be privileged to celebrate it by the publication of another and still better special packing edition.

A NEEDED IMPROVEMENT

Times change. It is only a few years since the announcement by the Dominion government that it proposed to establish a fruit marks act, and to prosecute those found guilty of fraud in the packing of fruit created bitter opposition. So vigorous were the protests made, the government did not dare to extend the principle beyond fruit packed for export, its main defense of its action being based on the claim that the standing of Canadian fruit on the British markets needed to be protected. This argument did not apply to fruit packed for consumption within Canada, and therefore nothing was done to protect the home consumers from frauds that were declared to be a crime when perpetrated on the buyers abroad.

And now, within the past few months, the government has amended the Inspection and Sales Act, which includes the Fruit Marks Act, so as to cover all fruit packed and offered for sale, either wholesale or retail, in Canada as well as for export, and we have yet to hear the first serious murmur of protest. This, of itself, furnishes excellent proof of the success that has attended the enforcement of the Fruit Marks Act.

This amendment has long been needed. Fruit that unscrupulous packers feared might not get past the fruit inspectors, if shipped for export, has been unloaded on the home markets, including the west, with the result that the cries of protest by the Canadian consumer have been steadily increasing in volume. The happy days of the dishonest packer in Canada are drawing to a close. The end cannot come too soon. It is unlawful now to mark or cause to be marked a wrong name, or the name of any person or firm, other than the one who actually packed the package. Thus are the opportunities of escape from detection being closed.

PRE-COOLING FRUIT

Commissioner Ruddick's contribution in this issue, on the pre-cooling of fruit, calls attention to an improvement in our methods of handling fruit that the future still has in store. Its day is fast coming. There are sections already in British Columbia where the growers, being forced to ship their fruit long distances, already recognize the need for some such system.

Already growers in the Niagara district have been gathering information with the view of installing a pre-cooling plant. The time for such action may not yet be ripe, but the necessity will become so great ere long that further delay will not longer be advisable.

Our request in our last issue for information concerning the late Charles Arnold, who originated the Ontario apple, has borne fruit. We now have the address of a son and daughter of Mr. Arnold, both of whom are familiar with his work and one of whom has kindly consented to furnish an article concerning the same for an early issue of The Canadian Horticulturist.

A reader of The Canadian Horticulturist who resides in the Niagara District, and who has had some experience with irrigation problems, has written us heartily commending our suggestion that the Ontario government should investigate the possibilities of irrigating portions of the Niagara fruit belt from the Welland canal. More on this subject will be published later.

As far as the holding of a national apple show is concerned Ontario apple growers seem to have forgotten the motto, "Nothing venture, nothing win," or have they got it twisted into nothing venture nothing lose?

PUBLISHER'S DESK

This Issue

While not the largest in number of pages, we believe that this issue of The Canadian Horticulturist is the strongest from an editorial and news standpoint, and in its educational character, that we have ever issued. We venture to say that numerous bulletins have been issued under governmental auspices, both in the United States and Canada, dealing with the packing of fruit, that do not contain the same amount of helpful, valuable, timely information as does this issue of The Canadian Horticulturist, nor are they as profusely illustrated.

Nevertheless we are sorry that this number is not still better. Some of our best articles, unfortunately, have been crowded out. These include one on "Cooperation in Ontario," by P. W. Hodgetts, provincial director of horticulture, which we purpose running as the introductory article in our next issue. Another strong article, "Educational Work in Fruit Packing," by R. M. Winslow of British Columbia, has also had to be held over although it was Mr. Winslow's main article, the information on fruit packing, given elsewhere in this issue, having been sent by him merely to illustrate the photographs. However, these and some other good ones will be published later when they will probably be all the more interesting for having been kept over.

Should any of our readers who love flowers best feel that their departments have been somewhat overshadowed in this issue we trust that they will forgive us this time. We are planning to more than make it up to them. Next year we purpose publishing a series of twelve articles in The Canadian Horticulturist, one in each issue, describing some of the best amateur gardens we know of in Canada. These gardens are now being selected with a view to the interest of their special features. This much we can say. Some of them are located in Ottawa, Toronto and Hamilton. We expect to choose the others in smaller places. If you know of any gardens that you would like to see described we invite you to write to us. Each article will be profusely illustrated. Already three well known authorities on gardening subjects have kindly consented to assist us in the preparation of these articles. They will be the most interesting series of artices that have ever appeared in The Canadian Horticulturist.

Do you ever stop to think of the splendid value we give you when we furnish The Canadian Horticulturist once a month for only sixty cents a year? As far as we know there is no other horticultural publication on this continent or in Great Britain of the same class as The Canadian Horticulturist that charges less than one dollar a year. Don't you think that we deserve your assistance, and won't you help us by showing this issue of The Canadian Horticulturist to some of your friends who are interested in horticultural subjects and obtaining their subscriptions? For your trouble we will send you a fountain pen or some other nice premium. One gentleman, a lawyer in Toronto with only a small garden, recently paid for five subscriptions to The Canadian Horticulturist, they to be sent to five of his friends.

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J. D. McGREGOR, MANAGER

Notes on Britain's Apple Markets

Grant S. Peart, Burlington, Ont.

Autumn coming in the near future, it is again time for apple growers and dealers to study the markets. It is probable that some of Canada's apples will be sold on British markets this season as of yore. A little discussion on these markets may then not be out of place.

The following are a few conclusions taken from an accumulation of opinions that have resulted through experience of British and Canadian apple men on Britain's apple markets. These I had the good fortune to collect during the past winter. Readers must remember, however, that the best of information on the subject of markets is misleading sometimes. The object of this article is to give a line of ideas (which may or may not be facts) but which will probably be of interest to Canadian shippers.

The British consumer distinctly demands three classes of apples, the dessert type for a limited fancy trade; No. 1, cooking and dessert apples for the general trade and large quantities of inferior stock, No. 2's, for culinary purposes alone. With reference to varieties of a strictly dessert type, say McIntosh and Fameuse, only the "Fancy" and "No. 1" grades should be exported. The inferior surplus can be marketed at home to better advantage. The same remarks may be said to apply to No. 3 stock of all other varieties. When placed on these markets they tend to depreciate the values of higher grades of fruit and to hurt rather than build up our apple reputation. The demand for our standard varieties is practically unlimited, and many other kinds are accepted, sometimes at good prices, but only when required for a special trade or at a time when there is a shortage in standards.

Six apple shippers, representing different parts of Ontario, when asked to name the best paying varieties of apples, taking one year with another from the exporter's point of view, gave the following list. The varieties given are placed approximately in the order of their selling value:

Four exporters named the King, three the Snow, one the McIntosh, five the Spy, one the Ribston, all the Baldwin, four the G. Russet, all the R. I. Greening, three the Stark and one the Ben Davis.

Only apples of a fancy and No. 1 grade should be packed in boxes. Relative net prices received by shippers, for No. 2's, per box and barrel, are about the same. While as a general rule better sales are accounted for high grade fruit in boxes when free from competition with inferior grades in boxes.

The dessert trade demands apples of medium size. Such fruit is retailed by the number, so much a dozen, or by weight, so many to the pound. Thus the handling of very large apples reduces the retail merchant's profit and renders him a less ready customer. With the staple sorts apples medium to large in size are desired.

It is extremely difficult to determine the individual markets to which various sorts of apples should be shipped to secure the best returns. The markets change from day to day according to supply and demand, so that a variety that goes begging in Glasgow might be somewhat eagerly sought after in London, while a week later the positions may be reversed. In a general

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way the markets of the Midlands, the North of England and Scotland handle Ontario apples to better advantage than the South of England and Ireland. The latter are the apple growing districts which keep the London market and those of Ireland comparatively well supplied. However, these apples are largely of cooking sorts, so that even in these markets little competition can be feared with dessert varieties.

Then again the Midlands, typified by Birmingham, are very strong purchasers of Russet apples of all sorts, including the Ribston, Roxbury and Golden Russets. The north of England and Scotland also seem to want red apples, which means that the Spy, Baldwin, King and Ben Davis are preferred by the Northern consumers. For large quantities of box apples Glasgow appears to be one of the best markets, while Liverpool is equally as good for large shipments of barrels. Both these places are heavy distributing centres, buyers from other towns and cities purchasing their supplies in them. Bristol is developing into a good market, but nothing should be sent there before November first, since it is in the heart of an apple growing district. Hull has an export trade with the continent of Europe, and for this requires Baldwin, King, Ben Davis and Golden Russet in boxes. The important factor in their trade is that the fruit must be capable of long shipments.

I want to express my appreciation of "The Canadian Horticulturist." I have been reading it for three years and find it very helpful.—Miss A. Moyle, Richmond Hill, Ont.

Renew your Subscription now.

Room for Improvement

E. M. Straight, Macdonald College, Que.

Some days ago we visited the fruit auction rooms in Montreal. The display of California fruit was large and very fine. The thing which struck us as being the most remarkable was the way in which it was packed. We have a long way yet to go, in Quebec, before we may successfully compete with the California packer. Care in placing, care in grading, care in the arrangement of color characterized every package. The package goes farther than we think—much farther. We could point you out stuff that day that the farmer, used to first-class fruit and vegetables fresh from the fields, would not eat; yet, largely because of its package, it sold.

Not only beauty of package must be considered, but strength is equally important. In every case the Western fruit man did not give sufficient attention to this, although he usually did. In car lots the weight on the bottom layer is very great. Any breakage in these packages or others means much loss to the grower.

A gentleman from Canada, travelling in Egypt, writes to the Department of Trade and Commerce to say that apples in Egypt cost two shillings each. He recently had eaten some which were of a very fine variety. He states that there is a splendid opportunity for Canadian apples in the Levant, and adds: "These wealthy princes and people of Egypt who own half the Bosphorus pay any price when they want anything. My friend seemed not the least concerned that apples should cost him 50 cents a-piece." If an attempt were made to ship apples to Egypt, the correspondent of the department believes that a harvest would be reaped.

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BALL FARM, NIAGARA-ON-THE-LAKE,
August 1st, 1911.

"Regarding the large blocks of Pedigreed Cherries, Peaches, Pears, Plums and bush fruits we planted last fall, am pleased to tell you the results are in every way satisfactory. The few trees put in this spring do not compare with the fall plant, either in growth or take. We lost considerably more of the spring planted trees, and the growth is much shorter. In future we plant in the fall.

D. A. R. RODGERS

Pedigreed Cherries, planted November 1910, 99 per cent. thrifty July, 1911
The property of D. A. R. ROGERS, Darr Farm, Niagara

We strongly recommend the fall planting of all fruits excepting yearling plums, which are inclined to freeze back, and should be planted in the spring. Where the land is suitable and the work well done, fall planting has in every case proved more satisfactory than spring planting. Particularly is this noticeable this dry season. The land is usually in fine planting condition in the fall, the trees quite dormant, the weather cool, and more time can be given to plant carefully. Fall planted trees are well established by spring, and make a much heavier growth than spring planted orchards. These are a few reasons why fall planting pays.

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PLANS Send a rough diagram of your house and we will send complete plans and estimates for heating it. **FREE**

Packing Apples in Barrels

The management of the Norfolk Fruit Growers' Association (Ont.) has sent a circular letter to its members giving the following suggestions in regard to the packing of fruit:

Get your ladders, picking baskets, packing table, stemmer, press, leveller and plank on hand, also engage your pickers and packers so that when your apples are ready to pack you are in a position to do so.

Picking should be done with care. Handle the apples so that they will not be bruised. Never pick apples off the ground and put in the barrels with Handpicked No. 1 or No. 2 apples.

Drive all quarter hoops down firmly and nail with three nails in each upper quarter hoop. Then drive hoops well down on the end of the barrel with poorest head and nail four nails. Then head line by using four nails in each headliner. Exercise care in headlining and drive nails slanting. If nails show through to outside of barrel don't clinch but take out and drive right so it does not show through. Now, take out the other end of the barrel and clinch the quarter hoop nails. Use one and a quarter-inch wire nails. Next stencil your barrel.

PACKING

Get everything ready for packing.

If using paper, place this in the end of the barrel. With great care pick out and stem your facers, not the largest but average size of grade you are packing. See that every apple is a perfect one with the very best color you have to choose from. You should not have any difference in size in your facers, but if you should have, place your smaller apples to the outside row and the larger ones to the centre. A good many inexperienced packers do the opposite. Always place stems down, with the exception of long, shapely varieties, as Gilliflower and Bellflower, which lay red cheeks down. The sorting must be done carefully and reject all wormy, fungus spot, bruised and unshapely apples both for No. 1's and No. 2's. Now, place your barrel on a plank and after each basket of apples emptied give the barrel several quick, short shakes. You will have to be governed according to the size of the apples you are packing now full to fill the barrel before using the leveller. At all times level so it will take one row, blossom end up, on top and leave your apples about one-half inch above staves. Care must be exercised in racking down very carefully. Nail and headline your barrel and same is ready for shipment.

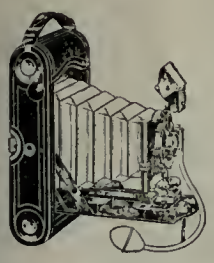
Size for Snows, Golden Russet and kindred sized varieties, 2 1-4 inches and over, of good color, for No. 1's, and 2 1-8 inches and over showing some color for No. 2's.

Size for Baldwins and kindred sized varieties, 2 1-2 inches and over, of good color, for No. 1's, and 2 1-4 inches and over showing some color, for No. 2's.

Size for Spies, Greenings, Kings and kindred sized varieties, 2 5-8 inches and over, of good color, for No. 1's, and 2 3-8 inches and over, showing some color, for No. 2's.

Don't pack any No. 2's in Talman Sweets or early fall apples, such as Jenneting, Colverts, St. Lawrence, Maiden Blush, etc. Pack very few No. 2's in odd winter varieties. Let No. 2's chiefly consist of Kings, Snows, Greenings, Spies, Baldwins and Russets.

The number on every barrel is the grower's name, and each grower will be paid for his fruit according to varieties and quality, and it is the duty of each grower to see that his apples are packed according



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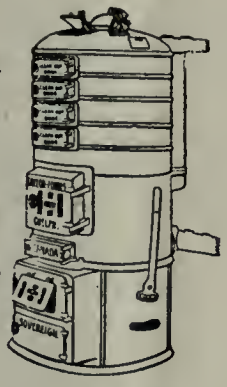

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Modern and Ancient

CHAPTER 3

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All members should help build up our reputation in honest packing of apples.

PROVINCIAL NOTES

British Columbia Notes

Superintendent R. W. Allen of the Oregon Agricultural College Experiment Station at Umatilla addressed British Columbia fruit growers in a three weeks' series of lectures held during July. He began at Kamloops and travelled south through the Okanagan district, giving field demonstrations in the afternoons and stereopticon lectures in the evenings on orchard irrigation.

Mr. Herbert Garaway, the manager of the Okanagan Fruit Union, one of the largest fruit-handling companies in British Columbia, has expressed the opinion that within the next few years the Okanagan will be transformed into a great apple-growing country with peaches and other tender-skinned fruit almost entirely eliminated. In the north end of the valley no peaches or apricots have been produced at all, but in the district south of Kelowna, which has only recently been given up to fruit ranching, peach orchards have been laid out in a very generous style. Peaches have, however, proved to be a most undependable crop, while on the other hand apples are a certainty, can be grown at less cost and are much easier to handle and ship. This year the peach crop will be small. Practically every order that has gone into the big nurseries this year has been for apple trees. The entire irrigated zone in the dry belt bids fair to be covered with apple orchards.

The provincial nursery inspectors this year have condemned seventy thousand six hundred and sixteen trees shipped into the province by outside nurseries. The majority of the importations were from the United States, but there was also a good number from continental Europe and from other parts of the world.

The provincial fruit inspector, Thomas Cunningham, reports that in certain eastern sections of the province insect pests have been much more in evidence than in recent years, as well as black knot on plum and cherry trees.

In spite of the fact that the output of the home nurseries in British Columbia is increasing by leaps and bounds, the importations from other states and provinces never were so large as at present. The increase in importations—1911 over 1910—was more than 40 per cent. The total number of trees and plants imported up to April 30th for the present year was over 3,000,000.

The directors of the British Columbia Fruit Growers' Association have made a number of important recommendations to the provincial government. They urge the government to take immediate steps to have reliable reports made on new and untried districts which are now being exploited as fruit districts, in order that new, ignorant settlers may not be led into worthless investments by ignorant or unscrupulous agents or land companies; that a plant pathologist and entomologist be engaged and given facilities for conducting labora-

torical work on the broadest lines; that the services be engaged of Prof. B. E. Etcheverry, head of the irrigation department of the University of California, to investigate and report, with recommendations, on the distribution and use of water in the irrigated districts of British Columbia, and that an assistant be engaged for Mr. R. M. Winslow to assist in the general secretarial work of the horticultural branch of the Department of Agriculture.

Western Annapolis Valley, N.S.

R. J. Messenger

One of the best things that has happened in the fruit belt this season was the heavy rain that fell August 16. The unusual hot weather began to affect the apple crop both in retarding the growth and also in causing a drop. The rain freshened vegetation, and by August 19 the apples were showing up better. This is Nova Scotia's record-breaking year. Some place the number at one and a quarter million barrels of export fruit. True it is that the fruit will almost all barrel, for it is the exception to find spot or wormy fruit.

Another sign of improvement and encouragement is the rapid growth of cooperative shipping associations. In April of this year there were nine societies. Now twenty-three are working, the greater number having their own warehouses either built or in course of construction. There is also a central association formed to amalgamate the individual associations. A man has been sent to the West to negotiate sales of apples and has already placed some 20,000 barrels of Gravensteins at good prices, as well as later fruit.

The Gravenstein crop is simply immense. Every tree in Nova Scotia seems to have a full load. The crop of this variety alone promises from two hundred and twenty to three hundred thousand barrels.

The great problem facing the people of Nova Scotia this season for the first time is the handling of the fruit, not only in picking but also in warehousing and transportation. Prices are a thing of the future, as operators are not in a hurry to quote. R. J. Graham of Belleville, Ontario, who has a number of evaporators through the valley and who expects to have these all running in full blast this season, is also buying apples for export. He is offering $1.50 tree run, or an advance of twenty-five cents for packed fruit.

Eastern Annapolis Valley, N.S.

Eunice Buchanan

The very dry season has caused the apples to ripen much earlier than usual, and fears are entertained as to their keeping qualities. Gravensteins, which as a rule are not picked until after September 10th, will be ready about August 25. Duchess, Astrachan and Crimson Beauty were harvested early in August. One dollar and a half has been paid for Nos. 1 and 2 Duchess. The continued dry weather has lessened the expectations of some orchardists, as growth was arrested and there are more small apples than was at first anticipated. However, so far we have not had bad winds or storms, although quite a lot of apples are dropping from lack of moisture. Still, people are thinning, and there are plenty of fine apples left which have never been so free from spot and worms.

Wasps ate large quantities of raspberries, while many blackberries simply dried up. Cattle have had to leave the pastures because the brooks are empty.

Blueberries (wild) have been selling from seven cents to ten cents a quart, an un-

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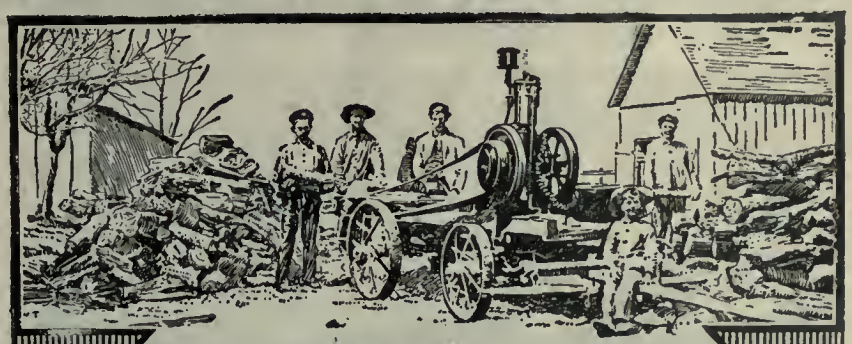

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usual price. Many barrels of apples are going to Western Canada, where packing company agents are opening new markets.

Silver leaf disease is reported in Berwick orchards.

The quality of the tomato fruits is exceptionally good, though green ones are dropping.

Montreal

E. H. Wartman, Dominion Fruit Inspector

The large cities draw from far and near to supply their wants. To-day (August 15) a car of apples arrived from Woodstock, N. B. The variety, Crimson Beauty, graded No. 2. It is a nice, clean, bright red apple of small size—about the same texture as the Astrachan, but not so good in quality. Their cleanness and brightness sold them well.

This apple, if thinned well on the tree, ought to make a good box apple for England. Bright red apples are always in demand, and to date this year they are very scarce. I am of the opinion that the hot waves lasted too long to give color on early varieties. There are many orchards in which you could have hung a thermometer on the sunny side of the tree and it would have gone up to one hundred and ten degrees Fahrenheit. As an old French lady on Bonsecour Market said of her apples, "They be baked."

Eight cars of California fruits were sold at the fruit auction on August 14th. There were peaches, pears, plums, grapes and nectarines. All were sold in an hour and a half at fair prices. The packing and quality of the fruits were both good.

The first shipment of apples for England sailed from this port on August 13th. This is the earliest I can remember. Bright colored fruit, well graded and landing in good order, ought to do well. Fruit has been selling at high prices all season here—too high for many to fill up all their cases.

Quebec Province Notes

E. M. Straight, Macdonald College, Que

The exceeding dry and hot weather conditions, general throughout Eastern Canada, have been much in evidence in this province. Some sections have not suffered so much, but in the vicinity of Montreal crops have suffered greatly. Small fruits were not at all plentiful. Raspberries were particularly short. They sold in Montreal at twenty cents, and it is reported that they brought much more at retail.

Apples are looking well. There is the prospect of a fair crop.

The experimental orchard at Abbotsford was visited by me recently. Mr. Richardson, the superintendent, had everything as it should be, and the public demonstration in the orchard in the afternoon was attended by many farmers of the section and by a number of representatives from other localities. The trees, by their clean bark and healthy foliage, spoke louder than words.

Just now the farmers are excited over "fire blight" and "melon wilt." These are not new enemies, but some way there are always localities where it makes its appearance for the first time, and others where it is noticed for the first time. Fire blight, or twig blight, is well known and should be readily identified on apples. The young, succulent twigs are brown and dead at this season. The dead leaves adhere to the twig. The disease is internal, bacterial in origin. Sprays are of no avail. Cutting out the affected tissue is the only practical method. "Melon wilt" is also a bacterial plant disease. It attacks melons, cucumbers and

squash. Striped cucumber beetles are responsible for its spread, and in dry, hot weather it spreads rapidly. The affected plants wilt and eventually die. By breaking an affected vine and rubbing the ends together, a certain ropiness will be noticed, when the parts are pulled apart, if the true wilt is present. Pull up diseased vines and burn. Kill the squash beetle. That is all you can do.

The truck farmers around Montreal surely know their business, and it is one not easy to learn. Land is worth twenty-five cents a foot for market garden purposes. These men by their strict application to business have become independently wealthy and are known all over the countryside. Melons—well, we won't say the Montreal melon—speaks for itself. Here is where you may find acres of cold frame. Beside that, we have some ten or twelve acres under greenhouse glass on the island. On the whole the sight is good to look at and not to be forgotten soon.

Macdonald College is offering some special inducements to farmers and farmers' sons to attend the college this coming session. Under present arrangement the cost of a college education is slight indeed, and the opportunity for the young man is great. A card to the Registrar brings full information.

Niagara District Notes

L. Woolverton, Grimsby, Ont.

A succession of disasters has visited the fruit growers of this usually favored section this season. The long extended drought of May, June and part of July made strawberries and raspberries a very short crop. The very bushes of the latter were withered and dried up before their time. Then came high wind storms, which played havoc with plums, pears and apples, covering the ground with immature fruit, too green for marketing; and, to cap the climax, there followed about August first such an electric and hail storm as nobody living remembers the like. Now a large portion of our apples, plums and peaches escaping the wind are cut and bruised by the pelting hail, so that they are rotting on the trees and are so blemished as to be unsalable. Pears, especially the later kinds, are least injured, their form apparently having caused the hail to glance off without cutting the skin, but grapes have suffered most of all fruits.

But worse than wind or hail or drought is a comparatively new evil known as "Little Peach." Akin to Yellows, but different, and if anything, more disastrous. It has alarmed Canadian peach growers lest it should become in Ontario the scourge which it has proved in Michigan, where whole orchards have been destroyed and the trees thrown on the flames lest it continue to spread. In some Ontario orchards hundreds of trees have been already destroyed by command of the inspectors, who claim to diagnose the evil by the color of the foliage and the incurl of the leaves. The chief proof to the grower, however, is the small size of the fruit; peaches that should grow to a large size ripening up prematurely, almost as small as marbles.

Noticing some of my Japan plum trees affected in a very similar way, I am wondering whether this foreigner, which brought to us San Jose scale, is not also to blame for spreading Little Peach, a disease unknown before these were introduced. Possibly the pollen of this plum carries the disease to the peach. Anyway I am ordering my men to cut out those plum trees with little, undersized plums, which give rise to my suspicions. I would like to hear from our Michigan peach growers as to whether they

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have been growing many Japanese plums and whether they have any reason to think they are in any way blamable for Little Peach.

The whole district between Beamsville and Hamilton along the line of the H. G. & B. trolley is being devoted to fruit growing, but not in large fruit farms as formerly. The one hundred-acre farms are being cut up into ten and fifteen-acre plots and being better cultivated and better pruned and sprayed, and thus several families are better supported than the one original owner, who had more than he could cultivate.

The Benefits of Cold Storage

J. A. Ruddock, Cold Storage Commissioner, Ottawa

If I were asked why I think cold storage is useful in handling late fall or winter varieties of apples, I would put the case something like this: A large percentage of all apples become more or less wasty and over-ripe before they reach the consumer. Now, that is partly the result of injuries which the apples receive in the picking and handling, and it is partly because they are held for a few weeks at too high a temperature. Even our latest varieties are exposed to temperatures which are not sufficiently low to check these life processes in time, and in consequence a large percentage of the apples become over-ripe and wasty before they reach the limit of their season—the season that they may be expected to be good in.

Cold storage will not prevent all this waste. There is as much room for improvement in the handling of apples so as to prevent bruises and skin punctures of one kind and another, as there is in the application of cold storage. If you have your apples perfect, sound in the skin, with no bruises and no punctures of any kind so that the moulds cannot find entrance, winter varieties will keep a long time even without cold storage; but with the aid of cold storage you can extend their season, and those which are not quite so perfect will be preserved in better condition.

Apples keep very much better some seasons than they do in others. I am speaking of the winter varieties. In 1909 it was found that the Northern Spy kept very badly, it turned out badly early in the season. There was reason for that, and I think it was simply this: that at the time of harvesting and after the apples were packed, while they were still in the barrels lying round, the weather was unusually warm, and that meant of course that there was a very rapid deterioration. Now, if these apples could have been chilled, and without any delay, at the time they were harvested, it would have meant a considerable saving to the apple growers and dealers, many of whom suffered great losses in that year, and the warm weather would have been an advantage rather than a detriment.

It is not easy for the individual farmer to provide himself with a good cold storage warehouse, but it is possible for the individual fruit grower to have small ice storages. If I were a fruit grower or was handling apples or tender fruits, I should certainly provide a place of that kind. Of course I think the ideal way would be to have these apples removed at once from the orchards to the cold storage warehouses. In the State of New York—where they need cold storage a little more than we do because their season is somewhat earlier in some districts—along the Falls Branch of the New York Central Railroad

Extract from evidence given before the House of Commons Committee on agriculture.

Daisy Apple Press

Used by all leading apple packers in Canada, United States and England.

Write for prices and complete information to

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Manufacturers
Brighton, Ont.
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You can cultivate between berry bushes when the Bissell Garden Disc Harrow is closed up, or under fruit trees with wings added. Adjustable—for single horse, or light two horse harrow. Low or high seat. Reversible—In-Throw to Out Throw. Remember, no harrow is genuine without Bissell name stamped on it. Ask local dealer about the Bissell or write Dept. N for Catalog.

T. E. Bissell Co. Ltd., Elora, Ont.

The Bissell
GARDEN HARROW

See advertisement of Bissell Orchard Disc, page xiv.

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The *Only New* unabridged dictionary in many years.
Contains the *pith* and *essence* of an authoritative library. Covers every field of knowledge. An Encyclopedia in a single book.
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G. & C. Merriam Co.
Springfield, Mass.

from the Bridge to Rochester, you will find every little village has one or more big cold storage warehouses for apples. The fruit is taken right from the orchards into these places and stored there. These apples are mostly for the home trade and they are kept in storage until they are required.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

KINGSTON

The Kingston Society has issued a handsome prize list for an exhibition to be held in the armories, September 13 and 14. There will be an admission charge of twenty-five cents for adults and fifteen cents for children. A charge of ten cents is made for each entry, fifteen entries for a dollar. Any additional entries over fifteen cost five cents each.

Prizes of as high as three, two and one dollar are offered in some of the fruit sections. Most of the prizes are on a basis of one dollar, seventy-five and fifty cents each. This basis is followed in the vegetable, plant and cut flower sections. There are fifty-nine classes for fruit, forty-seven for vegetables, thirty-seven for plants and forty-three for cut flowers. The society has held an annual exhibition for several years. The secretary is A. W. McLean, 91 Clarence street.

TORONTO

The invitation of the president of the Toronto Horticultural Society, Mr. MacKendrick, to visit his gardens at his island home, 7 Chippewa avenue, on Saturday, August 19, from three to eight, was largely taken advantage of by the members and their friends. The Toronto Horticultural Society is fortunate in its president. His constructive policies and personal magnetism have brought new life to the faithful organization that has labored so long in the public interest, and his enthusiasm has now given to this society the strength necessary to cope with the problems ahead in the campaign—"Beautify Toronto."

Many amateurs grow too many kinds of plants; they crowd their beds, borders and rockeries with heterogeneous assembly of genera, many of which are of no special value, but at 7 Chippewa avenue the society found gardening interesting and effective. The great flowers had been selected which have been developed by florists, their habits and requirements studied, the beds treated and the plants labelled. The artistic blending of color, the grouping of plants, in fact the general lay-out gives the owner the voice of authority in our councils.

The front grounds were found to consist of a spacious lawn divided by a stone walk to the house, the flowers bordering the front, right and left. A rustic pergola shut out the vegetable garden from the street view, joining the house and running to the south limit of the grounds. The south beds were filled with dahlias, sweet peas, while attractive bloom was admired in the north and west beds, the phloxes coming in for much praise. On the east side of the house a dainty little rose garden in good condition gave evidence of a beautiful perfumed retreat. The writer's visit was made additionally interesting by meeting Mr. Elgin Schoff, an amateur botanist of merit, whose parents were known to him as the floral

BULBS

Plant Now For

SPRING FLOWERS

There is no season of the year when Flowers are enjoyed more than in the Spring. Bulbs planted this Fall will flower almost as soon as the snow is gone. Planted in pots they can be flowered in the house during the winter

Send to-day for our Beautiful Bulb Catalogue. It gives a list of Special Offers.

Mention this paper and it will be sent free.

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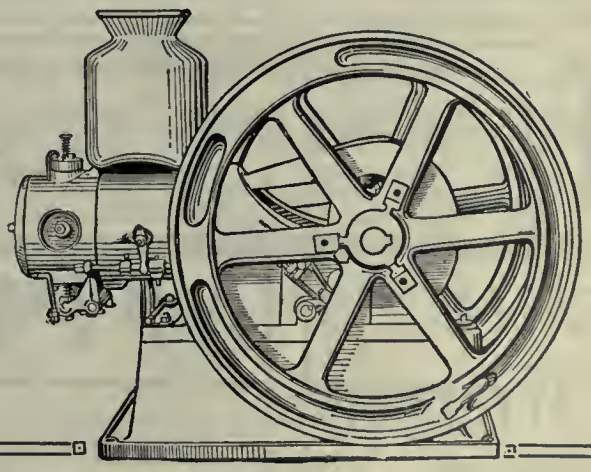
25 Church St., Toronto, Can.



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RELIABILITY is the first consideration in the selection of a Gasoline Engine. You want an Engine which will give you good service in Winter and Summer—Wet Weather and Dry—an Engine which will always respond when you want it.

OLDS ENGINES are famous the World over for Reliability and Economy.

They are so Simple that anyone, no matter how inexperienced, can, with a little care, operate them with perfect success.

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WE WANT YOUR FRUIT We have a splendid market for the best grades of Canadian fruit. The demand is increasing every year. We are in close touch with the best buyers and can secure for you the highest prices obtainable for your fruit. We sell direct to buyers on a commission basis only. Correspondence and consignments solicited. We can make money for you. Highest references.

WM. BAMFORD & CO., 93 Hope St., GLASGOW, Scotland

GINSENG

While you are thinking to order your Ginseng for fall plantation, drop us a card and get our prices. Choicest plants and seeds.

The
Eastern Townships Ginseng Garden
CONSTABLE, N. Y.

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Cable Address: "Neale's, Manchester"
Warehouses: 10 Hanover St., Shudehill, Manchester
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Regular Consignments Solicited
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Choice Roots and Stratified Seed For Fall Planting

WRITE FOR PRICES AND ORDER EARLY

Send two cents postage for Illustrated Booklet

E. A. RUSSELL & CO.
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Send your consignments of APPLES to the Home Country to

RIDLEY HOULDING & CO.
COVENT GARDEN
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Who specialize in **Apples** and **Pears** during the Season. Personal attention Prompt account sales and remittances

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SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—**Currants**, Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—**Raspberries**, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—**Garden Roots**, Asparagus, Rhubarb, Perennial Celery, Write for Catalogue.

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Fruit Wrapper
PAPER

Recommended by Government Inspectors
Used with perfect results by largest growers

TAKE NO CHANCES WITH
UNTRIED PAPERS

Large Stock, Following Sizes, Always on Hand:

10 x 10	10c per ream (500 sheets)	
20 x 30	55c	" "
30 x 40	$1.00	" "

In addition to Fruit Wrapper, following supplies necessary to the modern Fruit Export Business are carried in stock at our Hamilton warehouse. Prices supplied on application.

Wrapping Papers **Twines** **Pulp Board**
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LIMITED
HAMILTON - - CANADA

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THE AUTUMN EXHIBITION

About twenty-five hundred people visited the autumnal exhibition of the society in the Allan Gardens. An enormous marquee had been pitched, tastefully decorated with plants from the Allan Gardens, and lit with festoons of hydro-electric lights, while an excellent orchestra was in attendance.

Over four hundred exhibits were registered, a very large increase over the previous exhibition in the early summer. There was a considerably larger number of names in the prize-winners' list. Mr. T. D. Dockray, the society's representative on the Ontario Horticultural Association, secured the special silver medal for August perennials.

OTTAWA

A successful exhibition under the auspices of the Ottawa Horticultural Society, was held during August, when the monthly meeting was also held. In view of the backward season the exhibits were not so numerous as they might have been, but the quality was of a high standard.

The feature of the flower section was a display of sweet peas. Some rare specimens of fruit were staged, both as regards size and formation.

A paper was read by Mr. R. B. White on "Lilies." Mr. Whyte dealt with twelve different varieties which he said he had found to be the best in his long experience. He explained fully the peculiarities and gave some interesting hints as to the time of planting and rearing, emphasizing the necessity for having them as short a time as possible out of the ground. This, he said, was the chief cause of failure because the bulbs got dry and were rendered useless. There was a long list of prize winners.

In Ottawa professional florists are allowed to compete with amateur florists at the exhibitions held by the Ottawa Horticultural Society. Mr. R. B. Whyte, one of the directors of the society, told The Canadian Horticulturist recently that this arrangemen has caused very little trouble, in as much as the amateurs generally win because they have more time to give to the growing of their flowers for exhibition than the professionals have. As professionals do not like being beaten by the amateurs they do not compete as often as they otherwise would.

Ontario Apples Won

Ontario apples won a great victory during August, when they captured the "President'a Cup" offered at the International Apple-shippers' Convention, held at Detroit, for the most comprehensive display of apples. The Canadian exhibit met with keen competition from displays made by the numerous apple-producing districts of the United States.

The principal points on which the Canadian apples won were "fine quality" and "commercial value." The collection comprised thirty leading commercial varieties, selected from carefully-sprayed orchards. Mr. William Dixon, Hamilton, vice president of the association for Canada, represented the exhibit, and Mr. P. J. Carey, Dominion Fruit Inspector, of Toronto, represented the "Fruit Division" of the Department of Agriculture at Ottawa, in the work of collecting and installing the display.

THE CONTRIBUTORS

From Mr. Carey The Canadian Horticulturist is informed that a number of our leading apple growers assisted in the preparation of the exhibit. A fine lot was contributed by Mr. J. C. Morgan, of the Inde-

pendent Order of Foresters' Home, Oakville. Mr. J. C. Smith, Burlington, furnished many varieties besides assisting to set up the display. As also did Mr. J. Breckenridge, Watertown. Another contributor was Mr. W. C. McCalla of St. Catherines, with apples grown from four-year-old trees. Mr. J. C. Harris, Ingersoll, furnished some splendid specimens from his well cared for orchards. Mr. R. R. Waddell of Simcoe and Mr. W. J. Furminger of St. Catherines, Dominion Fruit Inspector, rendered splendid assistance in the way of collecting suitable specimens for the display.

Comments by British Importers

During the past few weeks The Canadian Horticulturist has received a number of interesting letters from British apple importers and commission men, containing comparisons of the various packs of fruit they receive from different fruit sections. Ridley, Houlding and Co., of London, Eng., write in part as follows: "The apples that come from California, Oregon, and Washington are of the dessert variety, and are packed in boxes. There is no getting away from the fact that the best apples should pay to come in boxes. The size which finds most favor here is that which allows of being packed from 150 to 200 in a box. There are some Canadian growers who ship the finest of their apples to this country in boxes, and we are sure that they find it pays them well to do so. Apples packed in this way seem to escape damage from bruising, far more than those which are sent packed in barrels.

"When packed in boxes, the apples should be carefully graded, wrapped in paper, packed evenly in layers and a piece of corrugated cardboard put at each end of the box to prevent the outside apples from sustaining any bruises should the boxes be subject to any severe handling whilst in transit.

"In barrel packing, the main thing is for the quality of the fruit to be the same throughout the whole barrel. We strongly advise against sending mixed samples in one barrel. In past years this abuse was very prevalent but there has been a marked improvement, and the cases of complaints as regards the method of packing are now few and far between. Growers who pack their fruit fairly, so that it is quite reliable, will find it pays them best on a full market. There will be a good market on this side this year for high-class apples, which are well packed."

Fruit Crop Prospects

The fruit crop report for August of the Dominion Fruit Division reports but little change in the prospects from previous reports. Hot, dry weather in Ontario has caused varieties of apples to mature about ten days earlier than usual.

In the counties north of Lake Erie the prospects for early and fall apples have somewhat improved. Winter apples promise a medium crop. Along Lake Huron and inland the crop will be even lighter than previous reports indicated, owing to dry weather and wind storms. Lambton county will have about one-half of an average crop and Huron county a light crop of good quality in the best cared for orchards.

North of Lake Ontario a medium crop is expected. The crop is of good quality. Along the St. Lawrence Valley Snow apples will be light, McIntosh an average crop and Duchess, Wealthy and Transparent a fairly good crop.

A bumper crop is expected in Nova Scotia and New Brunswick. The fruit is large and free from blemish.

Any little girl can do the churning with

MAXWELL'S

Favorite Churn.

It makes the smoothest, richest, most delicious butter you ever tasted.

The roller bearings—and hand and foot levers—make churning an easy task, even for a child.

All sizes from ½ to 30 gallons.

Write for catalogue if your dealer does not handle this churn and Maxwell's "Champion" Washer.

David Maxwell & Sons, St. Mary's, Ont.

93

INTERNATIONAL GALL CURE

SOLD ON A SPOT CASH GUARANTEE

CURES While Horses Work or Rest

International Gall Cure is a certain, sure, quick and infallible cure for Galls, Sore Necks, Sore Backs, Sore Mouths, Cuts, Bruised Heels, etc. Will not melt and dissolve from the animal heat, but stays right where it is applied. Possesses extraordinary healing and soothing qualities. **International Gall Cure** is the cleanest, most antiseptic, purest and best Gall Cure on the market. We will refund your money if it ever fails to cure. Keep a box on hand as it is almost a daily need on the farm.

25c. and 50c. At all dealers.

INTERNATIONAL STOCK FOOD CO., Limited
TORONTO, ONT.

Bigger Cream Checks Sure For Years To Come

Just because a separator skims close is not sufficient reason for buying it. Equally important is the question of durability.

An I H C Cream Harvester was put to a year's test at the factory—running steadily for 10 hours every working day. This is equivalent to 20 years of ordinary use, figuring on a basis of half an hour's daily service. Yet in all this time there was no perceptible wear. What better proof of I H C durability can you ask?

I H C Cream Harvesters

Dairymaid and Bluebell

have been paying cow owners big dividends for years. Their skimming qualities are unequalled—their ease of turning—ease of cleaning—and durability are easily proved by the testimony of owners. Why not investigate?

You will find that I H C Cream Harvesters are the only separators with dust-proof gears, which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. The I H C has large shafts, bushings, and bearings. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated.

I H C Cream Harvesters are made in two styles—Dairymaid, chain drive, and Bluebell, gear drive—each in four sizes. The I H C local agent will be glad to point out the above features and many others, or, write nearest branch house for catalogues.

CANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

International Harvester Company of America
(Incorporated)
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I H C Service Bureau

The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problem to the I H C Service Bureau.

Ornamental Wire Fence

8c PER RUNNING FOOT

We pay the freight on this extra heavy galvanized, guaranteed fence to any part of Canada. **FREIGHT PREPAID**

FROM LOOM TO LAWN Regal fencing is woven on our own looms. We are one of the largest buyers on the Canadian fence wire market, our buying price is 20 per cent. lower than that of any other manufacturer. We employ no agents nor jobbers, but sell direct to the consumer, saving you the dealer's commission. Cost of raw material plus the cost of labor plus our one small profit equals our inside price of 8 cents per foot and up.

EXTRA REGAL FEATURES The Regal Oval Top Ornamental Wire Fence marks a new epoch in the Canadian fence industry. Never before has any firm made a fence as good as we make the Regal and sold it at the sacrifice prices we ask. The Regal is beautiful, artistic and durable; it will protect and increase the value of your property; it will enhance the attractiveness of the grounds of any mansion, cottage, farm-house, church, school, public building or park; it won't rust, corrode, sag nor require propping. No matter where you live, it will cost you from 25 to 65 per cent. less than the fence sold through your local dealer. It embodies the following: Uprights, No. 9 wires that are three inches apart and *crimped* from end to end; line wires, each embrace two No. 12 wires *twisted* alternately between each stay; special feature, both upright and line wires are *doubled at the top.* Made in any length desired.

ASTONISHING LOW PRICES By the introduction of new methods, up-to-date machinery and the employing of skilled wire experts, we have cut the cost of manufacture lower than that of any other fence factory. This economy added to our low buying cost enables us to quote the very best inside prices and at the same time offer a much superior fence than you can buy elsewhere for double the money. Prices:

36 inches high—	8	cents	per	running	foot		
42 " " —	9	"	"	"	"		
48 " " —10	"	"	"	"	"		

Notice—These prices are for Old Ontario only. For New Ontario, Maritime Provinces and Quebec, add 1 cent per foot. For Manitoba and Saskatchewan, add 3 cents per foot. For Alberta and British Columbia, add 4 cents per foot. This increase over Old Ontario prices is due to the additional freight rates which we pay.

3 foot Walk Gate $2.75; 10 foot Drive Gate $5.00

PROTECTION GUARANTEED We guarantee every foot of Regal fence, including its galvanization for *12 years.* We challange comparison. Simply figure out the price of the quantity of Regal fence you require and fill out the order blank below. Upon receipt, we will ship your order, **freight prepaid.** If your purchase is not entirely satisfactory, return wire at our expense, and we will refund your money in full. The satisfied customer is our best advertisement and business asset.

"Independent; not connected with any Trust."

ORDER BLANK I-1

Regal Fence & Gate Co.
Sarnia, Canada.

Gentlemen:—

I enclose herewith purchase money to the amount of .....dollars.....cents (state whether currency, P. O. order, express order or draft) for which you are to ship to me (freight prepaid).....feet of Regal Ornamental Wire Fence.....inches high. If it is not satisfactory I am to return the fence to, and at the expense of, the Regal Fence & Gate Co., and get my entire purchase money back according to the terms of the Regal Guarantee.

Yours truly

Name.....

Shipping Address .....

.....

Province.....

In British Columbia the outlook is that there will be a medium to full crop in the Okanagan and Kootenay districts. Early and fall apples will be a medium crop in the lower mainland, and winter apples light to medium.

PEARS

In Ontario there will be a good crop of Kieffers, a medium crop of Clapp's Favorite and a light crop of all other varieties. In British Columbia the crop will be medium.

PLUMS

The plum crop has somewhat improved in Ontario during the past month, and a medium crop is now looked for. Hail storms worked considerable havoc in a few localities. In the other provinces the crop will be light to medium.

PEACHES

Peaches generally will be a fair crop, but Early Crawfords will be very light. Smock and Elberta show for a fairly good crop. Yellows and Little Peach are reported prevalent in the Niagara District.

GRAPES

Grapes are looking splendidly in the Niagara District and promise to be a full crop, although in the sections affected by the hail storms considerable loss is reported.

Standards for Judging Fruits

The following standards for judging fruits have been approved by the Ontario Fruit Growers' Association for use during 1911:

APPLES AND PEARS

Single Plates—Form, 15; size, 15; color, 25; uniformity, 25; freedom from blemish, 20. Total, 100.

PEACHES

Single Plates—Form, 15; size, 20; color, 25; uniformity, 20; freedom from blemish, 20. Total, 100.

PLUMS

Single Plates—Form, 10; size, 25; color, 15; uniformity, 25; freedom from blemish, 25. Total, 100.

CHERRIES

Single Plates—Form, 10; size, 20; color, 20; uniformity, 25; freedom from blemish, 25. Total, 100.

SEEDLINGS AND "ANY OTHER VARIETY"

Single Plates—Form, 15; size, 15; color, 20; uniformity, 10; freedom from blemish, 10; quality and texture, 25; season, 5. Total, 100.

GRAPES

Single Plates—Form of bunch, 10; size of bunch, 15; size of berry, 10; color, 10; bloom, 5; freedom from blemish, 20; quality, 25; firmness, 5. Total, 100.

COLLECTIONS OF APPLES, PEARS, PLUMS, PEACHES, CHERRIES AND GRAPES

On Plates—Form, 10; size, 10; color, 15; uniformity, 10; freedom from blemish, 20; quality, 10; commercial value, 10; nomenclature, 5; arrangement, 5; season, 5. Total, 100.

BARRELS: APPLES

Fruit—Size, 10; color, 20; uniformity, 15; freedom from blemish, 15; texture and flavor, 15; total, 75. Package—Material, 4; finishing, 6. Total, 10. Packing—Facing, 6; tailing, 2; racking, 3; pressing, 4. Total, 15. Grand total, 100.

BOXES: APPLES, PEARS, PEACHES

Fruit—Size, 10; color, 20; uniformity, 15; freedom from blemish, 15; texture and flavor, 15. Total, 75 Package and Packing—Material, 3; finishing, 4; fulness or bulge, 4; solidity or compactness, 5; attractiveness and style of pack, 5; alignment, 4. Total, 25. Grand total, 100.

EXPLANATION OF TERMS—FRUIT

Arrangement.—Taste and skill in staging so as to attract attention and add to the general appearance of the exhibit.

Special No. 25. Sent by Express for $2.50

A Collection of Six Desirable

HOUSE PLANTS

Send us $2.50 and we will forward by express, to your express office, this very choice collection of House Plants. We select these as the most desirable plants for you to buy, chosen from our large assortment; they are full grown plants, now in their flowering pots, healthy, thrifty and beautiful. Our regular selling price of these plants is $3.60. To make a large number of sales we give this lot, an exceptional bargain, for $2.50.

1 Choice House Fern, Ostrich Plume.
1 Choice House Fern, Bostonensis.
1 Splendid Kentia Palm.
1 Large Asparagus Fern.
1 Xmas Cherry (in fruit).
1 Fine Cyclamen.

Cultural directions for these plants will be found in our Catalog, which we mail free with this order.

THE HAY FLORAL AND SEED CO.
Seedmen and Florists
BROCKVILLE - - - ONT.

Most people already use —and always will use— Windsor Salt. They know —from years of experience —that Windsor Salt won't get damp or lumpy. There is never even a suspicion of grittiness about it.

Its clean taste—its crystal purity and recognized economy—make Windsor Salt the prime favorite in every home where it is used.

Don't pay fancy prices for imported salt, when Windsor Salt costs so little, and is so high in quality.

WINDSOR TABLE SALT 16

Color.—Bright, clear, well developed color, characteristic of the variety.

Commercial Value.—Standard known market varieties, as grown in and suited to the district, preferred.

Form.—In all cases, except seedlings, refers to the normal type or shape of the variety, but in the case of seedlings it refers to shape as desired in a commercial variety. A roundish apple is of the most desirable shape, and oblate and oblong apples least desirable.

Freedom from Blemish.—Any injury by insects, fungus, bruises, loss of stem, or other cause, lessening the value or appearance of the exhibit shall be called a blemish.

Nomenclature.—Exhibits must be correctly named according to the nomenclature adopted by the society, association or exhibition at which they are shown. The use of the standard of nomenclature adopted by the American Pomological Society is recommended to such bodies.

Polishing.—Fruit on exhibition shall have as much of the natural bloom as possible. Judges should discourage polishing.

Quality and Texture.—To be considered in collections, seedlings, new varieties on trial, or other sorts in competition.

Season.—In collections it is desirable to have as long a season as possible represented by the varieties shown. Varieties past condition shown for the purpose of lengthening the season will not, however, score as high as apples in condition though of later season.

Size.—While size in some cases indicates care and skill in production, it is not usually found with the highest color and with freedom from blemishes; and as large size is not as important as high color and freedom from blemishes, the largest fruit should not take the first prize unless it is equal or better in other respects than those in competition with it.

Uniformity.—Specimens should be as nearly alike in size, form and color as possible.

EXPLANATION OF TERMS—PACKING AND PACKAGES

Alignment.—Alignment refers to the rows of fruit in the box—the straighter and more regular the rows the better is the alignment.

Attractiveness and Style of Pack.—When the box is opened the fruit should look attractive. The skill and good taste of the packer is shown in the appearance of the fruit and the style of the pack. There are many styles of pack, but the one should be used which lends itself best to the variety and size of fruit preferred. The fruit should be as nearly alike in size and color as possible. The box also should be clean and attractive looking.

Bulge.—A bulge or swell in the top row of fruit is necessary in order to ensure the fruit carrying well. Before the top is put on there should be a bulge of one and one-half inches in the centre of the top row and the fruit should be one-quarter of an inch above the top of the box at the ends. When the cover is on there should be a bulge of three-quarters of an inch at the centre, at both top and bottom.

Facing.—When facing a barrel, or when beginning to pack a barrel, the apples for the first row should be put carefully in with the stem end down, the stems having been first cut off so that they will not injure the fruit when pressed. If slightly smaller apples are used in the outside rows and larger ones in the centres it improves the appearance of the face. A second row is now put in, in the same manner as the first, and these apples should be arranged so they will show through the spaces between those in the first row. These two rows constitute face of the barrel. The fruit used for the face should fairly represent the fruit throughout the barrel, but the apples in these two rows should present as attractive an appearance as possible. The law in regard to facing, as defined in the Inspection and Sales Act, is as follows: "No person shall sell or offer, expose or have in his possession for sale any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package, and it shall be considered a false representation when more than fifteen per centum of such fruit is substantially smaller in size than, or inferior in grade to, or different in variety from the faced or shown surface of such package. Apples in barrels for exhibition should be packed as required by law.

Finishing.—By finishing is meant the heading, lining, cleating and marketing of the box or barrel. The heads of the barrel should fit snugly into the chine. For barrels, six rosined nails in each head are usually sufficient. They should be skilfully driven through them and through the top or bottom into the ends of the box. The sides of the boxes should be nailed with four nails at each end of each side of the box. The nails used should not be smaller than those known as five-penny.

Marking.—The marking of barrels and boxes should be distinct and attractive. It should comply with the regulations of the Inspection and Sales Act, which call for the initials of the Christian names of the packer, his surname and his address; the name of the variety of fruit, and the designation of the grade, whether it be "Fancy," "No. 1," "No. 2," or "No. 3." Such mark may be accompanied by any other designation of grade or grand if that designation or brand is not inconsistent with, or marked more conspicuously than, the one of the

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The illustration is an exact full size reproduction of this pen. It is pearl mounted with two handsome gold bands, filled with a solid 14 kt. gold pen and safety pocket clip. Every pen is guaranteed by the manufacturers to give absolutely satisfactory service in every particular, and will be replaced or satisfactorily adjusted in the event of any dissatisfaction within one year. A guarantee certificate goes with each pen.

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The Boys and Girls would be tickled to earn one of these Pens. Tell them about this Offer.

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See advertisement of Bissell Garden Harrow on page 228.

FOR SALE AND WANTED

READ BEZZO'S Import Bulb Advertisement on Page 199.

HARDWOOD ASHES—Best Fertilizer in use.—George Stevens, Peterborough, Ont.

PIPE FOR SALE—All sizes for steam, hot water heating, posts, green house construction work, etc., very cheap. Send for price list stating your needs.—Imperial Waste and Metal Co., 7 Queen Street, Montreal.

GINSENG SEED, 1910, for sale, from five-year plants free of blight. Supply limited.—N. Wilson, Vittoria, Ont.

CHARLES ERNEST WOOLVERTON, Landscape Gardener, Grimsby. Designs parks, house grounds, lawns, fruit and flower gardens, advises patrons on suitable fruit and flowering trees and shrubs either from forest or nursery, and furnishes gardeners to carry out his plans.

WANTED — Position as packing foreman for apple harvest. Experienced in Box and Barrel Packing. References if desired. Apply stating wages, etc., to Box B. Canadian Horticulturist, Peterborough, Ont.

FARMS FOR SALE

NIAGARA DISTRICT FRUIT FARMS.—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman St. Catharines.

100 ACRES ADJOINING LIVE TOWN with Collegiate Institute, good shipping facilities, sixty-five acres apple orchard in splendid condition; soil well adapted to fruit growing; large house with furnace, bath and electric light, two good barns. Would subdivide into two parts if desired. Price, twenty thousand.—F. J. Watson, 1275 Queen W., Toronto.

ASK DAWSON. He knows.

IF YOU WANT to sell a farm consult me.

IF YOU WANT to buy a farm consult me.

I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.

H. W. DAWSON, Ninety Colborne Street, Toronto.

SALMON ARM, Shuswap Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary mild winters, moderate summers, no blizzards, or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has ralized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

IF YOU WOULD LIKE to purchase a site for a home and fruit farm on good, suitable soil situated in the most favorable and dependable climate in Canada, get Louth-Clinton Peach Area free information and ground floor prices for properties in the coming locality for most profitable fruit growing. Don't miss present bargains—forty thousand mansion and farm for only thirty thousand, a fifty acres for ten thousand; others large and small. Enquire about them. State what you want. W. H. Brand, Jordan Station, Ont.

said four marks which is used on the said package."

Material for Barrels.—The standard barrel must be large enough to contain at least 96 quarts of fruit. Smaller barrels should not be exhibited. The barrel in general use in Ontario has staves 30 inches in length. In Nova Scotia the staves are 28 inches long. The dimensions called for in a standard barrel of minimum size are: Between heads, 26½ inches wide, inside measurement; head diameter, 17 inches, inside measurement; middle diameter, 18½ inches, inside measurement. The barrel generally used in Ontario is 27½ inches between the heads, 17 inches in diameter at the head, and with a middle diameter at the bilge of 19½ inches. A good barrel should have sixteen staves and averaging 9-16 jointing, cut five to two inches and averaging four inches in width at the bilge, and be free from large knots or shakes. The head should not be less than one-half an inch in thickness, dressed clean and sound. The hoops should be about 1 3-8 inches in width and eight in number. The barrel should be new and clean.

Material for Boxes.—The box should be made of material strong enough to withstand handling in transportation. The heads or end pieces should be each of one piece of wood and not less than three-quarters of an inch thick. The sides also should be each of one piece and not less than three-eighths of an inch thick. The top and bottom boards may be one or two pieces, preferably two, but not more than one-quarter of an inch in thickness. They must be thin, so that they will bend readily when the box is closed. There should be two cleats each for the top and bottom. Dovetailed boxes are not desirable. The standard box must be used. This is 10 inches deep, 11 inches wide, and 20 inches long, inside measurement.

Pressing.—Apples are often over-pressed. If the barrel is racked well there need not be much pressing. The proportion of fruit that is injured by pressing will be evident when the barred is opened. The less fruit that has been injured by pressing the better the barrel has been packed, provided, always, that the pressing given has been sufficient to secure the required firmness. Barrels loosely packed frequently show more injury to the fruit through shaking than barrels over-pressed.

Racking.—All barrels of apples should be racked when being packed, so that the fruit will settle, and the packer thus be able to fill his barrel so that the fruit will carry well. When the barrel is opened the fulness or slackness will indicate how well the fruit has been racked. Over-pressed fruit is usually found when apples have not been racked well.

Solidity.—This may also be expressed by the terms firmness and compactness. The more solid the pack the better the fruit will carry.

Tailing.—By tailing is meant the putting and placing of the last fruit into the barrel. All that is necessary in good tailing is to have the surface as level as possible with the stem end down when the apples are pressed. The care in tailing will be known when the barrel is open by the manner in which the fruit has been bruised when pressing.

Items of Interest

The fourteenth annual convention of the Canadian Horticultural Association was held in Ottawa August 9 to 11. This association is composed of professional gardeners, flower growers and retail florists. The convention proved most successful, delegates being present from numerous points throughout Ontario and Quebec and even from Winnipeg. Mr. John Connon of Hamilton, the president, presided. The following officers were elected: President, A. C. Wilshire, Montreal; first vice president, W. Muston, Davisville; second vice president, H. B. Cowan, Peterboro; secretary, J. Luck, Cote des Neiges, Que; treasurer, C. H. Janzen, Berlin, Ont.

The annual meeting of the Ontario Ginseng Growers' Association will be held in the Y.M.C.A. hall, 1087 Queen street West, Toronto, on September 6, at 10 a.m. It is expected that addresses will be delivered by Rev. D. E. Medd of Goderich, P. Menzies of Milton, W. Kilgour of Peterboro, J. Fayer of Galt, J. Nichols of Mono Mills and Chas. Leggatt of Kingsville. Growers of ginseng are invited to attend. The secretary is P. Wilson, 283 Evelyn avenue, Toronto.

It is reported in Nova Scotia that the "Colonial Corporations, Limited," a London and Montreal company, proposes to organize a subsidiary company to be known as "The Nova Scotia Fruit Estates, Limited," with a capital of one million dollars, for the purpose of acquiring fruit lands and engaging in the business of raising apples and other fruits, in Cornwallis Valley. It is stated that this company is now in communication with the shareholders of the Hillcrest Orchards, at Kentville and other property owners in the valley, for that purpose.

A New Hydrangea

(Snowball Hydrangea—Hills of Snow)

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The Canadian Horticulturist

Vol. XXXIV OCTOBER, 1911 No. 10

Cooperation in Ontario

P. W. Hodgetts, Toronto, Ont., Provincial Director of Horticulture

CO-OPERATION in fruit growing is appealing strongly to-day to the Ontario farmer. Success has attended the efforts of the men at St. Catharines, Simcoe, Forest, and other points in the joint marketing of their fruit products under one manager and in the purchasing of those supplies which are so essential to the production of the best quality of fruit. Urgent appeals have been made to both the federal and provincial departments of agriculture for aid in the organization of local associations, and to-day forty-one of these are at work that will handle this year fruits valued at from three-quarters to one million dollars, besides thousands of dollars' worth of spraying materials, packages, fertilizers, and other materials. The future of co-operation seems brighter than for some years, and with care in the selection of suitable officers and managers, and a still higher standard of grading than we have yet had, very few failures should result.

P. W. Hodgetts

TWO ESSENTIALS

Two points at least seem to be essential in the proper organization of any farmers' co-operative company. First, the selection of the best man possible as business manager and the payment to him of a good living salary; and second, the growing of high quality fruit that can safely be marketed under the brand of the association. Numerous instances have occurred in Ontario where organizations have come to grief on one or other of these points. One company in Southern Ontario, successful the first year, and with splendid prospects before it, changed managers the second season to effect a saving of a few dollars in the salary. To-day the company's packing house is for sale, and co-operation is not very popular. Three small organizations in one of the northern counties came to grief in one year through attempting to pack and sell apples from orchards that were neglected, unpruned, unsprayed and generally dilapidated.

The greatest encouragement to those engaged in the promotion of fruit growing in this province is the active interest being taken on all sides by farmers and others in their apple orchards. No previous year in our history has shown such a demand for spraying machinery and spray materials for demonstrations in pruning and spraying and for other information relating to the apple industry. Companies both large and small have been formed to lease and buy apple orchards already in bearing and to set out young orchards. One of these concerns has taken over one hundred and forty thousand bearing apple trees from parties who in the past have largely neglected their orchards. Farmers themselves are everywhere leasing their neighbors' orchards where these can be procured on reasonable terms.

This activity means that during the present season and in coming seasons there will be a tremendous change in the quality of the fruit sent out from this province. With the improvement in the quality naturally follows co-operation in the selling. The expense of securing a high grade apple is naturally much greater than for the low grade product,

The Box Packing of Fruit in Ontario is Increasing Steadily. Students in a Short Course in Box Packing at the Guelph A. C. are Here Shown.

A Section of the Exhibits at the Last New Brunswick Provincial Horticultural Exhibition

The above illustration serves to show that the fruit growers of New Brunswick are awake to their possibilities in the line of fruit growing. Possibly no province in Canada offers better opportunities for profitable fruit growing than New Brunswick. Strawberries and certain varieties of apples do particularly well.

and a better price should be obtained for the fruit. With the exception of isolated cases this can only be procured through co-operative selling, and the growers very soon find this out. With quality fruit to pack and with a good manager, success will follow.

In view of the increase in the number of associations already manifest the Ontario Department of Agriculture is issuing this month an exhaustive bulletin on the subject of agricultural co-operation, with particular reference to fruit growing. This bulletin has been prepared by S. E. Todd, of Petrolia, who has made a special study of the subject. In addition, the Department Representatives, who are now placed in about twenty of the counties, are prepared to furnish information respecting this subject, and are capable of aiding in the organization of associations. Most of the newer organizations are taking out charters under the special clauses of the Ontario Companies' Act relating to co-operative associations. The charter fee is fixed at ten dollars for associations without capital or with capital to the extent of ten thousand dollars. All of the requisite papers can be obtained from the Provincial Secretary's Department, Parliament Buildings, Toronto.

CHANGED CONDITIONS

At the beginning of the co-operative movement the fruit buyers, who had practically control of the apple situation in Ontario, were very much opposed to the organizations. These men feared that if the apple business was formed on co-operative lines that they would have to go out of business. This has now changed, and the most successful apple dealers are those who are purchasing from co-operative companies.

The pack of fruit which they now obtain is more uniform and superior to that which they were able to put out themselves under the old system of packing the fruit by separate gangs in the orchards. With the central packing house the buyers are able to get together mixed carloads much easier than heretofore, and on the whole they can pay a higher price for the fruit, knowing that they run very little risk of loss such as they frequently had to look forward to under the old conditions.

That the co-operative movement has assumed fairly large proportions can be best understood by stating that this year probably one-quarter of the entire export of apples from Ontario will be packed by co-operative associations. With continued activity along this line, such as has shown itself during the present season, three-quarters of the apples grown in Ontario will soon be picked, packed and sold by these farmers' co-operative organizations. When that time comes it is not too much to expect that a central organization of these local associations will be largely instrumental in looking after the sales. At present the provincial organization, known as the Co-operative Fruit Growers of Ontario, is formed from representatives of two-thirds of the existing fruit growers' associations. While it is most largely interested in the purchase of supplies, it is arranging for the marketing end of the business, which will be likely to soon follow.

Rather interesting is the following financial statement of one of our large co-operative concerns. This shows something of the extent of the business at one point in the province. With similar strong organizations in other centres the fruit growing industry will soon occupy a premier position among agricultural pursuits in Ontario.

RECEIPTS

O. S. accounts .....$	971.65
Ice and shipping accounts..	2,633.56
Storage and sundry accts..	155.13
Interest	71.94
Load and and com. charges.	1,886.06
Packing house charges	395.08
Fruit sold	63,321.16
Supplies sold	45,855.89
Stock sold	425.00
Balance	2,656.48
	$118,371.95

EXPENDITURES

Deficit of 1910 .....$	795.73
Power and light	343.68
Supplies and repairs	98.97
Sundries	884.68
Printing, posting and stationery	135.23
Telegraph and telephone...	251.36
Insur. taxes and interest ..	594.97
Ice and teaming	1,119.72
Foreman and assistants....	2,356.50
Manager	1,500.00
Fruit paid for	62,832.80
Supplies paid for	45,003.63
Refund on supplies, &c.	1,749.68
Officers and directors	205.00
Building purchased	500.00
	$118,371.95

Irrigation Advocated

A. Bonar Balfour, Port Dalhousie, Ont.

The item in the editorial column of the August issue of The Canadian Horticulturist, entitled "Investigation Required," interested me immensely. During the past ten years I have made a study of irrigation in both the humid and dry climates, and in my several visits to Canada the feasibility of irrigating limited areas adjoining the lake shore always appealed to me. Unfortunately for my pet scheme, when I came to reside in Canada I could not procure a place suitable to me near enough to the lake to put my ideas into practice.

We have here, however, to the east of Port Dalhousie something better—indeed one of the easiest propositions in irrigation it has been my good fortune to run across: that is, irrigation from the present Welland Canal by means of gravity. It would not be necessary to cut into the bank—the water can be syphoned over and carried in an open flume or through pipes. The land has a comparatively easy fall north to the lake, in which direction the flumes could run with lateral distributing flumes east and west. The better system would be to irrigate each unit from a reservoir, so that the volume of water carried by the flumes would be comparatively small.

To carry the water across a road or other obstacle, the system in vogue on the Craigenterry Meadows, near Edinburgh, could be used, namely that water rises to its own level. Over there water is carried under streams and across roadways through pipes, the water bubbling up on the other side to continue its course down the open ditch.

I trust that this may meet the eye of those interested in developing our resources, and that a practical demonstration of the value of the proper application of water to land may be made at a date not far distant.

Educational Work in Fruit Packing

R. M. Winslow, B. S. A., Provincial Horticulturist, Vancouver, B.C.

IT is a commonly accepted and true statement that the packing of British Columbia fruit is superior to that of any of the other provinces of Canada. This is due to a number of factors, the first of which is the influence of the high-class packing in Oregon and Washington, while the long distance to market centres, and the absence of the knowledge of poorer methods of packing, have had a great share in giving British Columbia this pre-eminence. This position has been attained only by a large amount of hard work on the part of her people, and not less so on the part of the Department of Agriculture.

The seasons of 1909 and 1910 have witnessed a tremendous advance in methods of packing, and so of grading, even in British Columbia. In that time, the fruit growers of the province have strengthened their packing and marketing organizations tremendously, and the output of fruit, coincident with this, has increased very largely. This has made possible the importation of the best class of United States packers, and has permitted a still higher standard of packing than previously attained.

The most notable advances since 1908 have been along two lines—the discarding of the square packs and the adoption of the diagonal, and the use of wrapping paper for practically all grades of market apples. The advances which we will next see are the marking of the number of apples on the end of the box and a still higher standard of grading than we have yet had.

THE MORAL STANDARD.

Perhaps the greatest factor in creating a high moral standard among fruit growers in the matter of fruit packing, has been the influence of the Packing Schools conducted by the Department of Agriculture. This work was inaugurated two years ago in the Okanagan Valley, at which time the Department opened classes under the instruction of the two most proficient packers, at which a limited number of pupils received twelve practical lessons of three hours each, for a fee of one dollar for the course. These schools immediately met popular favour in that district, and in all, an attendance of one hundred and twenty was enrolled.

In the fall of 1910, the exceptionally large apple crop on new orchards doubled the number of men who had fruit to pack, but did not know how to pack it. The applications for packing schools from all districts of the province rolled in to the department, and despite the fact that the fee was raised to three dollars, and that a local corporate body in each district was required to guarantee a minimum attendance of twelve, and to provide many of the requirements, the demand did not at all slack off. The department insisted on employing only apple packers of undoubted qualifications, and, on this basis, was enabled to discriminate, holding apple packing schools only where they would be most urgently required. In all, thirty packing schools were conducted, at which the total attendance of pupils was three hundred and eighty-four.

The attendance at each school was limited to fifteen. The fee of three dollars prevented the attendance of any but genuinely interested fruit growers. The instructors were of the highest class. The enthusiasm of the people was all that could be desired. Under the circumstances, it is not surprising to learn from the reports of the instructors that at least seventy-five per cent. of the pupils would, in their opinion, make satisfactory packers.

THE STANDARD REQUIRED

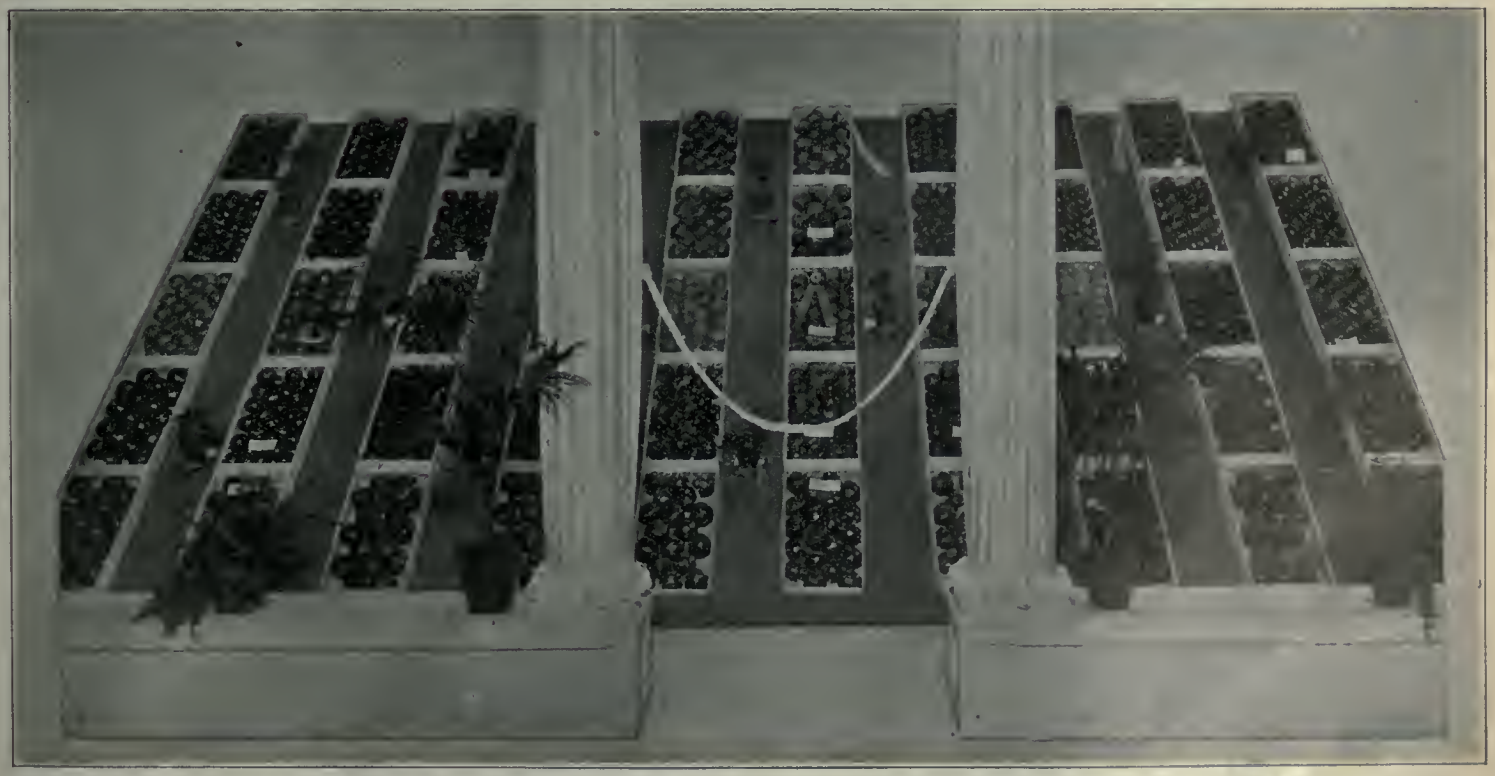
Diplomas will be given to the pupils of packing schools who attain to the following standard:

(1) Are given a score of 75 per cent. for efficiency by the packing school instructor.

(2) Make a display of five boxes of packed apples at their local fair, to be judged by an assistant horticulturist of the department, gaining a score of seventy-five per cent.

(3) Pack for one season with a reputable packing house, which certifies to their speed and efficiency as practical packers.

Only eight diplomas were given for the season of 1909-10. It is the intention of the department to make these diplomas valuable certificates of competency, and it is not likely that any



The Kelowna District Exhibit that Won the First Prize of $500 at the Canadian National Apple Show, at Vancouver, B.C., Last November. Notice all the different "packs" that are shown.

greater percentage will be given for the year 1911-12.

It is the policy of the department to encourage a type of packing that will produce a remunerative pack for the markets supplied by the district. We have never, for instance, used a packer from Hood River, because the Hood River pack is put up in two distinct grades. About fifty per cent. of their fruit is destined for the high-priced markets of the great eastern cities. The other fifty per cent goes to a low class of trade in Texas, Oklahoma, and Coast markets.

The pack of British Columbia, on the other hand, goes principally to the Canadian prairie markets, which will not pay the price for the exceptionally fancy quality which finds favor in the eastern cities of the United States, but yet want something better than do the central and southern states. On this account, the packers who come here are mostly from the Yakima and Wenatchee Valleys, which aim to supply fruit packed in medium grades, to the profitable but not fancy prairie markets. It is my own opinion, from actual observation of the fruit, the prices received, and other factors, that our grade in the Okanagan Valley runs higher than that of the Yakima, though possibly not equal to the average high-class pack of the Wenatchee, which district has an advantage in the exceptionally high color of its fruit.

We aim for a Number One grade, however, which is practically one hundred per cent. free from defects of any kind. There have been very few apples packed in British Columbia under the designation "fancy," though a big percentage of our Number One in consequence of our standard could practically be ranked under this head.

In some districts the grading is not so good, but our department is endeavoring to raise the whole standard of the province to the highest possible level consistent with the best returns. It speaks well for our fruit, that our higher-class Okanagan brands have already an assured market in the prairies.

IMPROVEMENTS DESIRED

The following are the principal improvements in packing being worked for by the Department of Agriculture:

The standardization of the grades in the various districts to make all equal to the best; the encouragement of the wrapping of practically all grades of winter fruit sent to market, and all summer fruit except the earliest and the green cooking apples; the standardization of packages, other than the apple, so as to simplify packing and popularize our product in the market; the adoption of the most efficient packing tables and general packing house equipment; the elimination of the straight and offset packs, and the adoption of the diagonal packs altogether, in the long box; the reduction of the cost of grading, packing and wrapping; the most careful handling at all stages; the marking of the number of apples on the end of the box, as well as the grade number; and the reduction of costs throughout by scientific management, and high-grade, conscientious work by every packer.

The Department of Agriculture will continue this work while the need for it exists. The production in the province is increasing so rapidly, and so many new districts are being opened, that the packing school will be a popular institution for a number of years yet, and when we have outgrown the packing school, there will be other problems in connection with the handling and marketing of our fruit which will call for continued missionary work.

This article is not intended to be of an educational character, but it is hoped that it will indicate, to at least a small extent, the spirit of strong enthusiasm and high ambition behind the fruit industry of the province of British Columbia.

Marketing the Apple Crop

P. J. Carey, Dominion Fruit Inspector, Toronto, Ont.

The branding of packages is not the least important point in the art of packing. A striking brand gives a good impression to the intending purchaser, and often will make a difference in price of twenty-five cents a box and fifty cents a barrel.

The Inspection and Sale Act calls for the face or shown surface to be a fair representation of the contents of the package. This should be the aim of every packer. A package can be neatly and attractively faced with fruit of uniform size, and at the same time meet all the requirements of the law. It is only fair to the grower, as well as to the different dealers through whose hands the fruit passes before it reaches the consumer, that it should be neat and attractive in order to meet the competition which is becoming more keen every day.

It is in the hands of the growers of Ontario to either mar or make the great fruit trade of this province. Quality in the fruit and proper packing are the two great essentials to aim at. With common sense and careful application these are easily within our reach. Having accomplished this we need not fear competition from any part of the world.

Celery should be dug before severe frost. Store it in a cool, well-ventilated place. The stalks should be packed upright with the roots bedded in good garden soil. The roots should be kept moist and the tops dry.—G. W. Hack, Norwood, Man.

Varieties of Grapes

Wm. Warnock, Goderich

With regard to the most suitable varieties for this district, I would say that I have had a fair experience with over thirty varieties, and can recommend a great number of them; but I will only name three of the very best: For black (Rog. 4), for red (Vergennes), for white (Moore's Diamond). These are sure croppers, and of excellent quality.

The three I recommend have the following qualities: Moore's Diamond, a heavy cropper, a most beautiful grape, and a little earlier than the Concord, and quite as hardy in the vine. Rogers 4, is more prolific than Concord, with a larger and better flavored berry and a longer keeper. Vergennes, apparently as hardy as the others, producing regular crops of splendid fruit, which I can keep till late in the spring by packing in sawdust. The grape requires to be planted in well drained land, deeply worked.

Nursery Stock in the Fall

Fr. M. Leopold, O.C.R., LaTrappe, Que.

It is usually good policy to purchase trees in the fall. "Heel" them in, near the proposed orchard and thus be ready for instant action when the ground gets in workable shape in the spring. The fall buyer gets first choice of trees, and runs no danger of delayed spring shipments. Or, buy the trees in the fall, and let the nurseryman keep them for you until the winter is over.

To "heel in" trees, dig a trench a foot and a half deep, the same in width, and as long as may be necessary. If possible, choose a high, sheltered, well-drained spot. Untie the bundles of trees and place them loosely along the trench —each variety by itself, properly labeled. Half a dozen trees to a running foot is close enough. Of course, put the roots in the trench; then incline the trees backward, until they are "half lying down" across the excavation. Now shovel in fine dirt, carefully firm it into place, and pile the remainder of the dirt well up around the roots and lower portion of the trunks. In Quebec, where the winters are very cold, and mice are often feared, earth can be piled still higher up around the trunks.

THE VARIETIES

The right varieties to buy is a very important matter. Even if it requires a year of preliminary study and inquiry to decide the matter rightly, it will be time profitably spent. The choice of varieties depends upon whether you intend to plant for market or family purposes. Talk with practical fruit growers in your locality and consult with your market buyers and with your family's taste.

In Quebec do not forget to plant

Fameuse, MacIntosh, and Wealthy apple trees. Also before buying, planning an orchard or ordering trees, study the facts relating to the pollination of blossoms. Much of the unsatisfactory fruiting of orchards all over the country is due to self-sterility. A tree is self sterile if it cannot set fruit unless planted near other varieties. An indication of self-sterility is the continued dropping of young fruit from isolated trees or solid blocks of one variety; also, fruit from a self-sterile tree is apt to be imperfectly formed. Self-sterility is not a constant character with any variety.

The loss of fruit from self-sterility may be prevented by planting other varieties among self-sterile trees. Duchess, Fameuse, Scott Winter and Tetofsky are early bloomers, while Alexander, Ben Davis, Fallawater, American Golden Russet, MacIntosh, Peach, Pewaukee, Greening, St. Lawrence, Salom, Stark, Wealthy, Winter St. Lawrence, Wolfe River, and Yellow Transparent blossom relatively at a later period. Therefore, we must avoid planting large blocks of the one variety. But on the other hand, remember that large uniform lots can be sold to better advantage than an assortment of many varieties. "Carload lots" always command attention. The carload lot of Jonathan apples was the attraction at the Canadian National Apple Show at Vancouver.

Getting the ground ready for the tree setting is another important part of "starting an orchard." If possible, plow it deeply in the fall. At least, it should be plowed previous to planting. Harrow it until the field is fine and level. If the ground was in sod last year, it is better to grow potatoes and subdue the grass previous to setting the trees. If necessary, spread barn manure over your field before plowing.

Floral Notes for October

Wm. Hunt, O. A. C., Guelph, Ont.

PLANTS of geraniums that have been doing duty as decorative plants in flower beds or borders can by proper treatment be kept over the winter very easily. The plants should be dug up before the stems have been frozen. A slight freezing of the leaves only does not injure them. Dig the plants with as much root as possible. Cut the roots well back, removing about half their length. Then cut back the top growth well to where the main stems are of medium or rather hard texture.

Usually, each large stem can be cut back to within a few inches of its base where it springs from the main stem near the root. All of the leaves may be removed from the plant. The plants can be potted singly in sand or sandy soil—half sand and half soil—in small pots. Three and a half or four inch pots are usually large enough. The plants can be put rather thickly in larger pots, or in small well-drained shallow boxes in sand or sandy soil. A small box about ten by twelve inches, and four inches in depth, will hold ten or twelve good-sized plants.

The sand or soil should be well watered once and the pot or box stood in a cool window, temperature about fifty degrees, or they can be stood away in a light basement or cellar until spring. The sand or soil should be kept barely moist, not too wet, during winter. Toward spring, or whenever convenient during the winter, after the plants have developed new roots and some top growth, they can be potted singly into good potting soil in four inch pots and placed in a warmer window, temperature about sixty to sixty-five degrees. Old geranium plants treated in this way make splendid plants for growing on as pot plants for early spring flowering, or for window boxes or flower beds for the following summer. By cutting the plants back in the manner described and placing them in sand, new roots and a new top growth are developed and the whole plant practically renewed.

A POOR PRACTISE

If the plants are dug out of the border in the fall and potted just as they are dug up, without being cut back, very poor results are usually obtained. Generally speaking, when geranium plants are dug up in the way last mentioned, the leaves commence to drop, leaving an unsightly looking plant in a very large pot, with only a few leaves toward the top of the stem, a great disappointment to its owner, and a plant that is of no decorative value whatever. By renovating the plant as first described, good sturdy, bushy plants can be obtained by spring, much

A Portion of the Exhibit of Ontario Fruit at the Canadian National Exhibition, Toronto, Last Month

better plants often than can be produced from cuttings taken in fall.

PAEONIES

Early in the month is the time to divide and transplant old roots of paeonies that require dividing and transplanting. Dig up the whole root, and divide it with a sharp spade or a large strong knife into divisions, so that each division has at least two or three crowns or buds. These should be planted about three to four feet apart in rich loamy or clay loam soil. In planting, pack the soil well around the roots. The crowns or buds should be nearly an inch under the surface of the soil when the planting is finished. A good mulching of rather short barnyard manure put over the plants before severe frosts set in will help them. This should be forked in around the plants in spring. New plantations of paeonies should also be made now.

Six good paeonies, not high priced, they being worth thirty to fifty cents each, include the following:

Festiva maxima—White with slight crimson blotch on a few petals.

Queen Victoria—White.

Edulis superba—Violet pink.

Jeanne d'Arc—Soft pink, changing to white.

Alice de Julvecourt — Rose shaded cream.

Felix Crousee—Dark red.

Six newer paeonies, higher priced, 50c to $1.00 each, are:

Agnes Mary Kelway—Rose, with yellow petaloids.

Madame Geissler—Sivery pink-shaded rose.

Modeste Guerin—Deep rose.

Duchesse de Nemours — Sulphur white.

Virgo Maria—Pure white.

Mons. Jules Elie—Glossy flesh-pink shaded deep rose.

DIELYTRA OR BLEEDING HEART

Dielytra (or Dicentra) spectabilis, the old-fashioned Bleeding Heart, is also best transplanted and divided in the fall. Much the same method should be adopted as in that given for paeonies. It is best to divide old plants of this favorite border plant every seven or eight years. Young plants in two or three years give finer growth and flower more profusely than do old plants that are left too long without being divided.

Where only one or two plants of either paeonies or Bleeding Hearts are grown, it may be best not to dig the old plants up entirely, but to cut off a small section or two from them and transplant in a fresh place, leaving the balance of the plant for another year or two before digging and replanting it. By adopting these methods, a continuous supply of the pretty red coral-like flowers of these plants can be had almost the whole summer.

Outdoor Culture of Daffodils

John Gall, Weston, Ont.

FEW flowers have taken such a hold on the public during recent years as the modest daffodil. Many flowers can show a much greater range of color and diversity of habit, but this bulbous plant has a something about it that appeals and its cultivation is now almost universal. While the daffodil is by no means fastidious as to soil and situation, like most other plants, it well repays any little trouble incurred in giving it suitable quarters.

LIFTING THE BULBS

It is a mistake to imagine that daffodil bulbs must be lifted every season, for the truth is that if planted properly and at reasonable distances apart, they may remain for a dozen or more years, and be all the better for being undisturbed. The daffodil takes only a short period of rest, as almost immediately the foliage has died down the bulbs begin to form fresh roots. If any lifting has to be done, therefore, the sooner now it is seen to the better; many of the tender young roots would be destroyed if disturbed later. Of course it is possible to lift the roots, even after top growth has begun, if extra care is taken not to break the roots and replanting is done at once.

DRYING THEM

If lifted at once the bulbs will be improved by a few weeks' rest before being replanted. After being dug up with a fork they should be spread in shallow boxes and set in a cool, airy shed (never in the sun). After drying thus for ten days or a fortnight the bulbs ought to be gone over and the smaller off-sets removed. Grade the bulbs, reserving the largest and plumpest for pot culture, while those of a medium size will be well suited for out-door culture. The smallest roots may be planted in some out-of-the-way corner, so as to gain strength for flowering in some future year.

PREPARING THE GROUND

A change of soil is very beneficial to the majority of plants, and the daffodil is no exception; so if a fresh site can be given there is more chance of fine flowers. A border from which potatoes have been dug is probably the best of all positions for the daffodil. On no account add any fresh manure to the soil, as this acts like poison on all the finer sorts. Should the ground be very poor a small quantity of well rotted manure may be dug in, but must be quite eight inches below the surface.

HOW AND WHERE TO PLANT

Daffodil bulbs vary considerably in size, and in planting allowance has to be made for this. The proper depth to plant, therefore, depends on the size of the bulb of the variety. The small kinds should not be deeper than four inches, while the largest may be six to nine inches. Perhaps it would be better to say that the tops of the bulbs should be from two to four inches below the surface. Plant with a trowel, setting the bulbs upright, and pressing the soil gently all round it with the fingers. The proper distance apart to plant depends on circumstances. If good clumps be made in the garden to give a capital display the first year, set the bulbs not more than two inches apart, but for large plantations on grass three to six inches asunder will be found a suitable distance. Of course, there is no reason why wider planting should not be practiced, but a thin sprinkling will take several years to provide a good show. November is decidedly the best time to plant.

Preserving Dahlia Roots

Will you kindly tell me how to preserve the roots of dahlias over winter and the best time to take them up from the garden? I have three crimson dahlias with a lot of small buds and only one large flower. It appears to me that it is through lack of nourishment. The soil is a rough sandy soil. Would you advise cutting off the suckers as they start to shoot, or let them have their natural full bloom?—I. H. L., Belleville, Ont.

Dahlia roots should be dug out of the ground before the roots or tubers are frozen. As a rule, the early part of October is late enough to trust them outside. I would dig them up at once, cut the tops off about six inches from the ground, dig the roots carefully with some soil attached. Place them in a shed or under the verandah away from frost for a week or ten days so that they may dry out a little. Then place them in a cool rather damp cellar for the winter, temperature abut forty to forty-five degrees. If the cellar is not available, put them in a box. Put dry earth around them and put them in as cool a room in the house as possible.

The rough sandy soil spoken of where the dahlias are growing is not the right kind of soil. A rich sandy loam suits dahlias better. Some loam should be obtained and dug into the soil with well-rotted manure if the soil is sandy.

Not over three, or at the most four, main shoots should be allowed to grow on each dahlia root. One or two shoots are better if large flowers are desired. The suckers or small shoots should be cut off except those that are wanted for flowering purposes.—Wm. Hunt, O.A.C., Guelph.

Seeds and bulbs are just like any other work of nature, as it greatly depends upon their breeding whether they are of any use or not.—D. W. Marden, Pilot Mound, Man.

Fall Preparation for the Perennial Border

A. J. Elliott, Aylmer, Ont.

IT will be generally conceded that the perennial flower is fast coming into its true position in the affections of flower growers, and that never before was there greater demand for it than at the present. Everyone who has a flower garden to-day must have a border of perennials, not single specimens dotted here and there, but a whole border, to get the very best effects of these excellent plants. This is only a matter of a few dollars, the will to spend them and enough land to make the affair a satisfactory success.

Perennials in Mr. Elliott's Garden

More than ever are experts writing about the perennial or herbaceous plant and more and more are their writings read and copied and their instructions filled. There is so much more pleasure from very early spring to late fall through all the phases of the peeping appearance out of the ground in the spring till the sere and yellow of autumn that it pays far more than the gaudiest bed of annuals in this short summer season. Foot for foot, I do not contend that the border is grander than, say, a bed of asters. But as a whole if properly planted with a view to continuity of bloom, the tout ensemble is far better.

It is claimed by some that the border should be of uneven width to give what is called an "undulating" appearance. If for a border of shrubs, to a fine stretch of lawn, all right, but if for a garden with walks around, my plan is to make the border geometrically straight. It is always best to place it along a fence or division line behind or at the side of the house, and if two neighbors can agree as to procedure and expense the effect is delightful, no fence then being needed. The tallest plants would be set in the centre and each could do as he liked on his own side.

PREPARING FOR THE BORDER

Having decided, however, to have a border, dig it four feet wide, good and deep now. If it was well manured last spring, you need not heavily manure it. I do not like fresh manure around roots. Then, after raking it down to a fine bed, set your line a foot from the fence and plant in this, the back row, any of the following. Hollyhocks, golden glow, tiger lilies, tea larkspur, hibiscus, rambler, thousand beauties or Dorothy roses, planting nothing closer than three feet.

This done, come in with your line eighteen inches, and set as before, but do as a carpenter says in shingling a roof "break joints"; that is, do not let any two plants be directly opposite across the bed. Also do not let the hollyhocks and phloxes be any closer than possible, because the former will rust the latter.

In the second row, plant perennial phlox, paeonies, lilies, coreopsis, sweet rocket, foxgloves, iris, chalcydonica, yucia and poppies. Do not plant anything closer than two feet in the row.

Now come in with your line another sixteen inches, and plant the final row of columbine, galliardi, Sweet William, platycodon, pinks, and so forth.

MULCHING THE BED

This having been done you will have nothing more to do till frost comes. As soon as the ground is frozen cover the whole with four or five inches of rough manure or leaves, and you can pat yourself on the head with thoughts of the flowers you will have next year. I have given a list of desirable plants, but there are many others, perhaps, that the reader would prefer. All can be reasonably procured at our nurserymen.

One thing I might add is that if there is no tulip or bulb bed near the border a few dropped in here and there, but enough to show well, might be done. For my part, as my bulbs are only across a path, I do not put any in the border.

When spring at length arrives, in the latter part of March, take your rake and pull off the mulch, and let the border lie. A red spike here and a yellow one there and signs of life everywhere push up through the ground in quick succession. About the middle of April put on some good rotted manure, and dig in, always remembering that one of these borders devours a pile of food. This done, you will find several spaces left which latter should be filled, not crowded, with gladioli, asters, zinnias, and plants. These instructions followed you will have a joy garden all summer and will never regret the pains and expense taken to secure it.

Border of Shrubs and Perennials in the Garden of Sir H. M. Pellatt, Toronto, Ont.

The Care of Dahlia Roots

J. McP. Ross, Toronto, Ont.

Saving the tubers of dahlias from frost is not difficult. Any place where you can keep potatoes will keep dahlias. After the frost has cut the foliage down leave the plants stay so for a week as it helps to ripen the tubers. Then on a sunny morning dig them up with the earth sticking to them as much as it will.

Cut the stalks back to six or eight inches, and let them stay out in the sun all day. If there is no danger from frost leave them out two days. Be sure and fasten the names by wire labels on the stalks and then pile them in a heap in some dry spot in the cellar out of the draft. If the cellar is hot and dry it will cause the tubers to shrivel; a liberal sprinkling of water will restore them. Packing them in boxes with dry sand over them is a good plan. Too much wet causes them to rot. My usual practice is to pile them in a corner on top of one another, and then forget about them till spring approaches when I overhaul them and put them in shape.

"The best is none too good." This old saying applies most forcibly to the selection of bulbs and flower seeds.—D. W. Marden, Pilot Mound, Man.

Garden Cultivation in the Fall

Dr. H. M. Speechly, Pilot Mound, Man.

IN the fall the use of the spade is particularly important as it secures the proper preparation of the various beds and plots of ground under cultivation and that useful stirring of the soil around perennials so essential to their welfare. There is nothing like good spade work throughout a garden whether of vegetables or flowers. Dig deep whether you want to grow celery or sweet peas. In fact, no effort of gardening can be really successful unless the soil is deeply dug and turned not once nor twice.

Loosen the soil thoroughly. Break up the clods. Allow no solid masses of earth to exist when you prepare a bed. What a splendid exercise, too, is this digging. How it warms up the blood and opens the pores of the skin in healthy wise. Accustomed as I am to vigorous spading it seems strange to see able-bodied men just spooning the ground with a long-handled spade and an injured air as who should say, "After all, why not do this with a plough?" Quite a number of men seem to think that digging for the purposes of a flower-garden is not the part of a man at all. But our gardener who digs well and truly is no dude nor dandy. He rises early and thinks, as he digs, deeply; stout boots and rough clothes are his choice.

DISCOVER THE WORMS

If you know anything of such roots as the paeony or perennial phlox, you will know that worms entwine themselves so securely between the roots and the adhering soil that the worms will sooner break than allow themselves to be pulled forth from their retreat. Fall digging in October reveals these worms as dried-up reddish objects quite shrivelled and still, and not more than a foot to 18 inches below the ground. Thus they will remain frozen solid until spring returns when from the end of May they swarm in my garden—preferring the clayey soil rather than the black humus common to our prairies. The American robin will follow the spring digging to catch the worms though with less friendly confidence than the real robin of the Old Country, which will often stand on the very clod just about to be turned in its eagerness to catch the worms thrown up by the spade or fork.

USE OF THE RAKE

After careful digging it may or may not be desirable to use the rake. Perhaps you desire to leave the soil rough-cast and open to the cleaving action of the frost or to help to hold the desirable snow-blanket, and therefore you do not rake. But perhaps you have planted tulips and other bulbs in the fall and intend to leave a prepared surface well pulverized. Then the rake comes into use, and so you rake the surface thoroughly both before and after planting your bulbs, knowing that such doings will save part of the spring rush of work.

Or perhaps you are aware that the seed of annual poppies, sown in the fall, will spring and bloom nearly two weeks earlier than if cast in the spring. Say you wish to have a nice bed of the Shirley poppy. You pulverize the bed thoroughly in the fall and allow it to settle well. Then you broad-cast the seed all

White Heather, Grown in Picton, Ont.

White heather is said to be very difficult to transplant. Nevertheless the roots of the plant here shown were dug up from the hills in Scotland, in the Highlands, near Nairn, and sent to Mr. Walter T. Ross, the secretary of the horticultural society at Picton, Ont., by mail. That Mr. Ross has been successful in growing it is shown by the fact that the plant was in bloom when photographed last July. Mr. Ross has had unusual success in growing numerous novelties, especially tropical plants.

over the prepared surface and holding the rake vertically pack the surface with moderate firmness. For a spring sowing of seed such as mignonette I use both the rake and the sole of my foot to press the seed firmly into a well-raked surface. For the edges of my beds, which are always a little raised, I use the rake as a firm packer and to rub off the weeds which are inevitable.

The Asparagus Beetles

My young asparagus plants have been attacked by speckled beetles, which have caused considerable damage. What are they and what will destroy them?—H. M., London, Ont.

The "speckled" beetles are probably one of the well-known Asparagus Beetles. The common asparagus beetle is about a quarter of an inch in length, and is conspicuously marked with six white blotches on the back. This species appears in early spring and eats into the young shoots, upon which it lays its eggs. The twelve-spotted asparagus beetle often occurs with the above, and is about the same size but broader, and of a reddish-orange colour. On the wing cases it has twelve black spots.

A remedy which has given probably the best satisfaction in destroying the grubs of these beetles is to dust the plants frequently with fresh air-slaked lime. This adheres to their slimy bodies and kills all with which it comes in contact. A simple remedy which has often given satisfaction is to simply brush the grubs from the plants with a stick, in the middle of a hot day. When the beetles first appear in spring, chickens and ducks, if allowed to run in the beds, will destroy large numbers.—A. Gibson, Assistant Entomologist, C.E.F., Ottawa, Ont.

Doorweed for Dry Places

Mrs. Annie L. Jack, Chateauguay Basin, Que.

During the past summer, so trying to lawns on account of the excessive heat and drought that caused the grass to shrivel and turn brown, a strip of ground along the north side of the house was the admiration of all comers, being vividly green, and showing the line plainly where it ended and other grasses began. It is "Polygonum aviculare," a small leaved perennial, properly named a weed, that grows along walks, and in dry hard soil where it makes a mat-like appearance, if kept regularly cut with the lawn mower.

It is a plant closely allied to the "dock" family and also to the buckwheats. So, though of humble origin, it is well connected. It proved this summer a friend in need, and has gained the name of "Doorweed." The object of bringing it into notice is that it might be useful where other plants cannot resist the dry hot weather, but it must be kept regularly and closely cut and not be allowed to straggle. Properly managed, it presents a velvety appearance that was very interesting by contrast this season.

In the good old days it was the custom of merchants to advertise their wares "by the power of man." The lungs of apprentices were developed, and the ears of passersby were deafened by strident cries. The apprentice boy has made way for the bill board. The ear is relieved, but the eye suffers grievously owing to these monstrosities. We must not only wipe out the bill board with all its hideousness, but we must get after the man who owns the vacant lot on which it is erected. If we cannot prohibit, we can at least put them under proper taxation and restriction.—Major H. J. Snelgrove, Cobourg, Ont.

Geraniums should be firmly potted to promote strong growth; loose potting has the opposite effect.

Winter and Spring Flowering Bulbs

W. Hunt, O. A. C., Guelph, Ont.

OCTOBER is the month for potting bulbs for indoor flowering, also for planting them out of doors for spring flowering. A few pots of white Roman hyacinths, Dutch hyacinths, Paper White narcissus, as well as some of the Trumpet and Double Flowering narcissus, will help to keep the window bright from Christmas until Easter. Pot the bulbs in good potting soil with a sprinkling of sand mixed in it. Water them well, put them in a cool cellar, and cover them an inch in depth with sand, fine soil, or coal ashes. Water this covering also, if dry, sufficient to well moisten it. Let the bulbs stay in the cellar for three or four weeks, or until they have developed a good root system. Bring them into the window as required before top growth is over two inches in height.

By making two or three pottings at intervals during the month and bringing them into the light gradually as wanted, a succession of these useful flowers can be had all the winter. In potting bulbs, the top or apex of the bulb should be just under the surface of the soil. The bulbs can be placed almost close together in the pots, half an inch of space between them being sufficient. Dutch hyacinths can be planted singly in a five inch pot.

The main points in the successful pot culture of bulbs are to first develop a good root system before top growth starts, and to keep the soil moist from the time they are potted until they are through flowering.

Tulips, Dutch hyacinths and narcissi should be planted about four inches deep in good garden soil. Avoid digging in strawy manure when digging the ground. Well rotted barnyard manure should be used if any. This is best dug in below the bulbs so as not to come in direct contact with them. Roman hyacinths are of no use for planting out of doors as they are too tender to endure the winter frosts. They are, however, excellent for pot culture indoors.

Crocus, Scilla, Chionodoxa, Leucojum vernum, and Snowdrop are dwarf growing bulbs. These are useful for planting near the margins of flower beds. All of them can be planted about three inches deep, and be put only an inch or so apart. No flower garden should be without a few of these useful pioneers of spring flowers to brighten up the surroundings before the summer flowers appear.

Wintering Roses

W. G. McKendrick, Toronto, Ont.

I used to tie up each rose in the beds in the fall in a bundle of straw or bulrushes and heavily manure the bed. I tried one fall four beds without manure or straw but drew the earth up around the stems of the roses from four to six inches, and they came through the winter in good shape. Since then I have not used manure as it holds a soggy mass around the roots of the roses that winter better if they are kept dry and well drained. A little loose straw or strawy manure just enough to keep the ground shaded so that it will not thaw and freeze off and on through the winter, would help the roots.

The comparatively modern plan of earthing up roses from four to six inches is a simple and excellent one. The non-conducting properties of this slight covering are surprising in a very severe winter, when no sound wood is to be seen above the earth covering; beneath it the shoots will nearly always be found uninjured.

I tie the stem of each climbing rose in a bundle to the fence a foot or two above the ground and shade from the sun with a little straw, though some that are left quite exposed for years are in as good condition as those I tie up. Climbing roses that are planted or transplanted late in the fall should have straw tied to them to keep off the hot sun in the spring as the sun will evaporate the sap in the shoots before the feeding roots can get to work to replace this sap and the roots shrivel up as a result.

Home of R. H. Gould, Spadina Ave., Toronto
Medal Winner in the 1910 Street Improvement Competition held by the Toronto Horticultural Society.

The Lovely Phlox

A. K. Goodman, LL.B., Toronto, Ont.

Abundant and familiar, beautiful and magnificent the phlox (meaning a flame in allusion to its brilliant flower), a weed in the untrodden wilds of North America, in the days of good Queen Bess, is now grown generally in our gardens. With good culture and good varieties the flower heads may be a foot long and nine inches through, the individual flowers being as large as fifty cent pieces. The annuals are grown from seed as asters, though they may be propagated by cuttings in the autumn.

It is best to plant the phlox a foot apart. The perennial phloxes, both early and late blooming, are propagated by division in winter and spring, cuttings or seed. They thrive in ordinary soil, but do not like a cold, adhesive, undrained clay; they favor light soil and love water in summer. The flowers are borne on the top of stems, but to insure large panicles it is necessary to have strong shoots, consequently the use of liquid manure is advised. By judicious arrangement, bloom may be had from July to November with growth possibly three to four feet high.

The following is a list of phloxes recommended for suburban gardens, experience seems to point to the fact that phloxes are not suitable for small city gardens, as they take up too much room.

"EARLY SUMMER"

Attraction, white with a crimson eye; Fantasy, pink, suffused crimson; James Hunter, rose.

"LATE SUMMER"

Atala, rose with a white centre; Coquelicot, orange; Etna, scarlet, all three feet high.

"DWARF"

Vivid, brilliant rose; Grandiflora, pink, crimson eye; Newry Seedling, white, rose eye.

The uncertainty of next season's blooming, and the care required during the summer, make it unprofitable to carry primrose plants over. Start new plants or purchase new ones from your florist next season.

Ginseng and Its Culture

By Hugill Barr, Box 614, Forest, Ontario

THE ginseng family is an interesting one to the student of nature. There are, at least, five different members of this family found in our Canadian woods. Some are very common, others are rarely found. Aralia Trifolia or groundnut is easily found in the early springtime in rich woods. Aralia Nudicaulis or Wild Sarsaparilla, is also common to most woods, while Aralia Racemosa and Aralia Hispida, the former commonly known as Spikenard, and the latter as Hirsute or Bristly Sarsaparilla (cf. Wild Elder) are not so common, and therefore, not so generally known.

It is with Aralia Quinquefolia or Ginseng that this paper deals. It grows in rich, dry, shady woods. The leaves are in a whorl of three at the top of the stem, the latter being from twelve to eighteen inches high. Each leaf stem has five leaves, in the fully developed plant. The flowers are dull in color, small, and insignificant. When ripe the berries are a bright red in color and are not unpleasant to the taste. They are borne in a cluster or bunch upon a stem in the centre of the whorl of leaves. This is by far the most interesting member of the ginseng family.

It is generally conceded that the root has certain therapeutics. However, in America, its use in medicine is comparatively new, but in China and other eastern countries it is extensively used. As far as I am able to learn its medicinal qualities are soporific, anodyne, nerve tonic and slightly laxative.

Historically speaking it may be said, that this plant was first discovered in Canada. In the early years of the eighteenth century, some Jesuit priests in eastern Ontario, in their earnest and self-denying labors among the aborigines of this country, are credited with discovering the plant and gathering large quantities of its root. It is now known to have been found scattered over a large area of the American continent.

There is no better strain of ginseng known than that found growing in our Canadian woods. At the present time, it is well nigh exterminated. Sometimes one may search for days and not find a single plant. Rightly or wrongly the Indians are charged with exterminating it from our forests. As a rule they dig it when and where ever it is found. I am of the opinion, that the Ontario Ginseng Growers Association, might do well to seek legislation protecting this valuable plant from the ravages of men. If a law were enacted, making it lawful to dig the root only in the month of October, it would be certainly a step in the right direction. By the end of September, as a rule, the seeds have ripened and have fallen and thus a chance is left, at least, that new plants will start into existence. Only a very few white men gather the wild root, for very few know it as it grows amidst the profusion of plant life usually found in our Canadian woods.

The Chinese and Koreans, almost, if not quite, venerate the ginseng plant. It is small wonder that they do. Specially is this true, if the root be in the shape of a miniature man, as indeed many of them are. Full oft the Korean, who is successful in his search for the wild root, is considered to have found favor with the gods. It is not an unknown thing for a Korean, anxious to find this wonderful plant and equally anxious to find the favor of the deities, to continue his search until overtaxed nature gives up the game and he lies down to die, on the hillside of his beloved Korea.

GINSENG CULTURE

In the cultivation of ginseng there are really few secrets to be known. The plant, being indigenous to Canada, is perefctly hardy. Nature is a wise teacher, and the ginseng grower will do well to observe her suggestions and laws with reference to the natural conditions of the life of this plant, as it is found in the woods. The writer invariably makes a study of the soil, situation, conditions of growth and general surroundings of every wild plant he finds. To keep near to nature is safe procedure.

The wild plant is not always found to be thrifty. Sometimes the shade is too dense, and the ground is too hard and unyielding or perhaps too moist. Another thing to be considered is the exposure of the plant to injury through accident. All these things, and many other considerations, will appeal to the ginseng grower. Given a rich, deep, alluvial soil, well drained, and in a location where the air, unhindered, circulates freely, and all that follows is easy. Cultivate deeply and finely in preparing the ground, being careful to remove all stones, sticks, and roots. By all means have the ground sufficiently rich—as rich as needed for onion growing—before planting begins.

The best way to make up the prepared ground is to shape it into beds five feet wide, with a two foot walk between. The edge of the bed can be kept in shape by running a narrow board along the sides, and staking it securely in its place. Of course, no weeds should be allowed to grow either among the roots or in the walks.

PLANTING

In planting a good way is to set the roots about eight inches apart each way, being careful to place the root two or three inches below the surface of the ground. A plan that works well is to dig a narrow, deep trench across the bed, and place the roots in the trench with the hand, straightening out, as far as possible, all fibrous roots before filling around with earth. If a crop is desired for drying, the best result will be obtained by maturing the root where the seed is planted. A better, marketable root is obtained by not transplanting. Of course, in some instances, it is found necessary to plant the seed thickly, and later transplant, say, when plants are a year old. Budless roots, in live condition, take a year to form new buds, during which time the grower will look in vain for the stems. To protect the buds, do not allow any scratch-of, or walking upon the planted beds.

SHADING

Shading is perhaps the most expensive part of ginseng culture. Of course, every one knows that it grows in the shade. Some growers, who possess suitable woodlands, grow their ginseng there in the natural shade and do well. This saves the time, labor and expense of artificial shade. However, if shading must be built place the posts that support the shading in the centre of the bed. Place scantling or straight poles from post to post, fastening each end securely to the top of the posts. Make the shade sufficiently high that men can walk under it without danger or difficulty. Use lath, or any kind of strip to make the shade. Make it into sections of convenient size for you. Plan the overhead work so that the shade sections will fit—no overlapping is necessary. Lath placed one half inch apart will make shade dense enough. Possibly, on the south and west sides of your garden, you might have to place shade to protect the edges of the beds from the sun.

Surround the garden with woven wire fencing six feet high. Be sure the meshes are small enough to keep out chickens, cats and other animals. Keep all animals out of the ginseng garden except toads. They are the friends of the grower. As soon as the seed is ripe in the autumn the shading can be removed and piled away under cover. Some growers use wire to anchor the sections of shade in their places on the overhead work. Old gas pipes, cut the right length, make good posts. Use a flat stone or a square of cement for a base.

In the culture of ginseng attention to a few things will often work wonders. If your garden is surrounded by a close

board fence take it away and put it to a purpose more worthy. For a ginseng garden use, as we have said, woven wire. This gives the maximum of breeze and ventilation. Let the breezes blow upon your plants and through your garden. Get all the air and light you can under the conditions of shade described. Everybody knows that dank, ill-ventilated nooks and corners are the breeding grounds of plant diseases. Small wonder if seedlings damp off in such places —it would be a wonder if they did not. Get the air. Get the breezes. Exclude the hot sun.

Do not hoe the beds; if you do there is danger of destroying some root bud, or cutting a plant, that the frost has heaved too near to the surface. Better pull out the weeds, and cast them into the fire.

In the spring, just as you see the plants begin to break the ground, spray with Bordeaux mixture. It is possible that there might be some spores on the ground waiting to destroy yur plants. The writer has not used pyrox, and therefore will not speak of it now. No doubt it will do all that is claimed for it.

AUTUMN CARE

Mulch in the autumn with clean, rich alluvial earth. It is not likely to be a culture for disease germs. A top dressing of such earth, one inch thick upon the beds every fall, will prove to be a great benefit to the roots. A word or two about seeds. As elsewhere stated, the seeds when ripe are a bright red. Indeed, a healthy ginseng plant with its bunch of red berries is a thing of beauty. It is generally conceded that the best way to deal with fresh, ripe seeds is to stratify them in moist sand for a year. A seed requires one year and a half to germinate; hence, if the crop be stratified for a year almost absolute protection is obtained. When seeds are required for planting, they can be sifted out of the fine sand very easily.

All seeds, whether planted in rows or broadcasted, should be covered with earth one inch and a half deep. If seeds are to be sown broadcast, sprinkle them with flour before sowing, so that an idea of the quantity on a given space may be obtained. If whitened with flour they are readily perceived on the surface, and can be covered with earth the desired depth. One thousand seeds to one yard of a five-foot bed will be sufficient. For Ontario, October is the best month for planting seeds and roots.

THE PROFITS

Does it pay? That depends largely upon the man. There are people growing ginseng who will never make it pay. Nevertheless in the hands of the right man it pays. At Blyth, Ontario, in the Hurnia Ginseng Gardens, with which the writer is well acquainted, careful tests have been made and results have been obtained that warrant the statement that there is no more profitable crop grown than ginseng. The facts are in the concrete. Ginseng speculators have advertised in a most extravagant way the enormous profits to be realized from an acre of ginseng. Of course, such speculators have ginseng stock for sale at exorbitant prices, and the advertisement has but one object—to find "takers." All of which we can well afford to pass by. The writer has no disposition, no time for, and THE CANADIAN HORTICULTURIST has no room for overstatements.

Celery Storing for Winter Use

Geo. Syme, Jr., Toronto, Ont.

CELERY storing is an occupation which is rather uncertain. Much depends on the condition of the celery at the time of storing and also on the weather during the winter. Good healthy celery stored about the middle of October or to the first of November should keep to the middle of April or the first of May. There are three ways of storing celery, which according to my experience, have worked out satisfactorily, namely, trenching, housing and pitting.

To keep celery in trenches, the outside leaves should be pulled off, the tops trimmed lightly and the celery packed firmly in the trenches, one spade wide and deep enough so that the tops come on a level with the ground. When the weather becomes cold cover the celery with boards laid flat on the top supported with braces to keep them from pressing too heavily on the celery. It should be watched and aired until the weather becomes severe. Then, cover the boards with a litter of straw. If you can have a little frost in the leaves at the time of covering with the litter of straw the celery will keep better.

HOUSING CELERY

Housing, or packing, celery in houses made for the purpose, is the most common method. The celery house should be built about fifteen feet wide, with a gable roof high enough to put in a top bench. This makes it comfortable to work in. Trap doors or air holes should be placed not further than eight feet apart. A door is necessary at each end so that a current of air can be allowed to pass through when necessary to dry up moisture. Trim the plants the same as for trenching and pack firmly in stand, standing the stocks on end after two or three rows have been packed. It would be well to bank up a little dirt to the stocks, cutting square down with the spade so as not to take up too much room. Repack once or twice during the winter.

PITTING

Pitting is the easiest and latest method of storing celery. It can be done on the ground where the crop is grown. No trimming is necessary. Piles are made by placing two rows, butt to butt, with the leaves turned out The pits should not be longer than about eight feet and about three feet high.

Cover the top of the pile with a little dirt until the weather becomes severe, then cover completely with dirt and afterwards with a little straw. Allow frost to get down to the celery before the last covering. It is better, if this method is adopted, to grow the celery far enough apart, so that it can be ploughed up to and banked. Leave the celery in banks as long as the weather will permit or until about the middle of November or the first of December.

Planting Rhubarb

Prof. W. S. Blair, Macdonald College, Quebec

Ground for rhubarb should be worked deeply at least six to eight inches, and well fertilized. The richer the ground the better the rhubarb. Four or five inches of manure worked in will not be excessive. This plant will, of course, grow on moderately rich ground, but as a rule the one thing lacking in most cases is abundant food material. A friable loam will give the best results. For early rhubarb a southern slope is advisable.

Every five years at least the plant should be divided, otherwise the crown gets dense and many small stalks will be formed. The old plant may be lifted and split up with a spade, leaving two to three eyes to a piece. Care should be taken not to break the roots of these pieces any more than possible.

Seedling plants may be planted, but as a rule these are very variable; and if you have a good strain I would advise division of the roots. Seed of the desired variety may be sown in rows three feet apart early in spring, and thinned to six inches apart, and if the ground is rich these will make fair plant for the next spring planting, or good plants for the following spring.

The plant may be set in the fall or early spring. We set the plants in rows four feet apart and four feet apart in the rows. It is a good plan to mulch the plantation with 3 to 4 inches of good rotted manure in the fall, which is worked in the following spring. Grass should not be allowed to grow, and shallow cultivation should be continued right up to fall, keeping the surface ground loose and friable.

Strip off the asparagus seeds before they ripen and burn them.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, $1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.
4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.
5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
6. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each issue in 1907, 8,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 8,067

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed.
THE CANADIAN HORTICULTURIST.
PETERBORO, ONTARIO.

EDITORIAL

THE ELECTION AND THE FUTURE

Since the election those fruit and vegetable growers who were alarmed, and with reason, in regard to how they might be affected by the passing of the reciprocity measure, have been breathing easier. There is little chance now of such a measure being adopted for another nine or ten years at least, and therefore all immediate cause for anxiety has been removed. Nevertheless the election has its lessons which should not be overlooked.

The inherent weakness of all industries built up behind the walls of protection is that they are subject to constant alarms. Every election is liable to bring on a clamor for the lowering or removal of the protecting tariff. This creates uneasiness in the minds of all connected with these industries and tends to unsettle trade. In Canada, hereafter, in spite of the immense vote polled against reciprocity, this condition is likely to be most apparent.

As long as the United States was opposed to free trade there was practically no agitation in Canada for it. This accounts for the relief, in this respect, that we have had in the past. Now, however, that the United States has shown its willingness to enter into a free exchange of natural products the agitation in Canada for the acceptance of the offer is not likely to subside. The urban population of the United States is growing rapidly. Its rural population is remaining stationary or decreasing. Thus year by year the value of the United States markets to our farmers will steadily increase. In Canada, because of our millions of acres of free farm lands, our rural population, for years to come, is likely to increase more rapidly than the population of our towns and cities. Thus our surplus of farm products for export will grow in proportion. This being the case, the demand for free trade is more likely to increase from year to year than it is to subside.

It seems altogether likely that the Liberal party will continue freer trade as a plank in its platform, including even many lines of manuactured products and an increase in the British Preference. This would make the question of freer trade an issue at each election hereafter. Thus the battle may have to be fought all over again with its consequent disturbance to business conditions. The indications are that there lies before us a long period of tariff unrest.

ESSAY COMPETITIONS

This year, through the generosity of Messrs. R. B. Whyte of Ottawa the president of the Ontario Horticultural Association, and of Mr. Hermann Simmers of Toronto, a member of the well known firm, J. A. Simmers, Ltd., seedsmen, of Toronto, prizes aggregating fifty dollars in value were offered to members of the Ontario Horticultural Societies contributing the best essays on the subject "My Favorite Garden Flower and How I Grow It." A number of excellent essays have been submitted in this competition, but not nearly so many as there might have been had the competition been more widely advertised by the local horticultural societies. The results of the contest will be announced shortly and the winning essays printed.

This is a line of work that the Ontario Horticultural Association might well take up next year and extend. A condition of the contest might be that competing essays must first be read at meetings or exhibitions of the local societies before being eligible to compete for a provincial prize. Later the successful essays could be read at the annual convention in Toronto of the Ontario Horticultural Association and published in its annual report, thus receiving wide distribution. There is a great demand for such information as these essays could be arranged to provide. By conducting competitions of this character regularly each year the educational value of our horticultural societies could be much increased without involving the expenditure of more than a trifling sum.

EXHIBITION SUGGESTIONS

The fruit growers of Eastern Canada are making rapid progress, but much still remains to be accomplished. Our greatest need is a broader vision of the possibilities of our industry, more enthusiasm and a spirit of hearty cooperation in efforts to bring them to pass. In the light of what we might do if we would, what we are doing often seems sadly inadequate.

This year, for instance, Nova Scotia will export over a million barrels of apples. The fruit is of unusual quality. The bulk of it will grade high. It will bring into the province several million dollars. This month the Nova Scotia Horticultural Exhibition will be held at Wolfville. It will open on October tenth and last for three days. The prize list amounts to two thousand dollars. Think of it! Two thousand dollars. It should be twenty, or still better, thirty thousand dollars. But no! it is two thousand dollars.

Last year British Columbia, which imported twenty-eight thousand, one hundred and three barrels of apples and exported only one thousand nine hundred and twenty-three barrels, held a national apple show, at which fifty thousand dollars was offered in prizes. Five thousand dollars was offered as one prize for the best carload of apples. This year they are holding a provincial show at which the prizes offered will be equally liberal. What, let us wonder, would their prize list be if they had an apple crop like that in Nova Scotia?

The trouble in Nova Scotia does not rest on the shoulders of the directors of the exhibition. It cannot be blamed against the provincial government. It rests with the people of the province as a whole and particularly with the rank and file of the growers themselves. Did they but realize that there is nothing to prevent them from holding a show equal to that held in British Columbia, that doing so would advertise the fruit growing possibilities of the province to the world as nothing else could, that it would tend to double and treble the value of the good orchard lands of Nova Scotia, which are ridiculously low, thus increasing the prosperity of all the growers, we would soon see Nova Scotia holding an apple show that would be a credit to the East.

Ontario is but little if any better. It grows the great bulk of the fruit produced in Canada. Each year it holds an excellent provincial horticultural exhibition, but its prize list of less than five thousand dollars, a large proportion of that being offered for flowers and vegetables, is not what it should be. This year the directors of the Fruit Growers' Association had an opportunity to arrange for the holding of a national apple show in Ontario next year,

but the proposition seems to have overcome them, as we hear nothing more about it.

From a horticultural standpoint one of the best things that could happen in Canada would be the making of arrangements by which each of the provincial exhibitions now held annually in Nova Scotia, New Brunswick, Ontario and British Columbia would follow each other in consecutive order. These could then be advertised. Intending well-to-do settlers could be encouraged to make a tour of all the provinces, taking in each of the exhibitions; apple buyers could be attracted, and a healthful rivalry created between the provinces that would prove beneficial to all. The suggestion might receive attention at the next Dominion fruit conference.

From time to time we have drawn attention to the need that exists that the work of the entomological division of the Dominion Department of Agriculture should be extended and strengthened. In this connection we would like to see the division furnished with the funds that would enable it to publish a bulletin or book, profusely illustrated by colored plates, describing and giving the life history and characteristics of the more important injurious insects of the orchard, garden and farm. There are numerous bulletins giving this information in part, but none seems ever to have been attempted that would deal with the subject at all comprehensively. The educational value of the weed bulletin issued a few years ago by the Dominion seed division has been so great as to justify the expense that would be involved in the publication of a similar volume dealing with insects.

Compulsory spraying has frequently been advocated in Ontario and elsewhere in the East, but the proposal has never been treated seriously by those in authority. Such a law prevails in British Columbia. If a grower refuses to spray, government officials have power to enter his orchard and do the work for him, and he has to pay the bill. Had there been such a law in Ontario the San Jose Scale would never have made the progress that it has. One of the worst agencies, probably the worst, in the spread of this pest were the orchards so far destroyed by the scale that their owners neglected them and left them to infest surrounding orchards. Some townships have appointed inspectors in an effort to deal with the situation and much good work has been accomplished by them. The situation, however, has never been entirely satisfactory. We can hardly wonder, therefore, that we still meet those who favor compulsory spraying.

From the outset the Ontario government has acted as though the Jordan Experiment Station was a sort of unwelcome infant that had been forced upon it against its will. It has never granted any more funds than it could well help to develop the work for which the station was established, and now it is stinting these. An improvement in this respect is over due.

Clean Advertising

"He must go." That is what two thousand representative advertising men from Canada, the United States, and England said at a great convention held recently in Boston, when discussing the advertiser who publishes dishonest, unclean or untruthful advertising.

Publishers recognize that they cannot allow the dishonest advertiser to use space in their publications if they are to retain the goodwill of their readers and the patronage of reliable advertisers. It is as much their duty to protect their readers from unreliable information in their advertising columns as from misleading articles in their reading columns.

The Canadian Horticulturist was one of the first Canadian publications to adopt this principle in regard to the advertisements it prints. For years its publishers have refused to publish any advertisements they felt to be unreliable or objectionable in any way, or that they felt doubtful about.

This attitude, while it has cost the publishers a great deal in loss of advertising which they might have accepted and published, has earned the confidence of readers of The Canadian Horticulturist. They intend to continue to merit that confidence.

We believe that every advertisement in this issue of The Canadian Horticulturist represents a reliable individual or firm and one which our readers need have no hesitation in patronizing.

PUBLISHER'S DESK

Our front cover illustration this month shows a partial view of the celebrated Prairie Valley, near Summerland, B.C. It conveys a good idea of the beautiful nature of the country in this favored fruit growing section.

From time to time we are asked why we do not publish more news from British Columbia in The Canadian Horticulturist. The same mail that brings such a letter may bring similar letters from subscribers in Nova Scotia and Quebec who feel that the fruit interests of their sections do not receive adequate attention in our columns. To all such letters we reply that The Canadian Horticulturist is national in scope. The territory covered by The Canadian Horticulturist is so broad it makes it impossible for us to publish as much information and as many special articles relating to each section as we could were this paper local in character. As far as practical we endeavor in each issue to publish some notes from each of the leading fruit growing provinces and also articles that will be of equal value wherever they may be read. Within the next year or so we expect to be able to enlarge The Canadian Horticulturist sufficiently to enable us to give more attention to each province than we now do. Thus, while we will give more local news connected with each province, The Canadian Horticulturist will still remain national in scope and in usefulness.

Quite often we receive letters similar to the two mentioned in the advertising talk in our September number, asking for information as to where a certain class of goods may be purchased. There are probably many of our readers who wish to secure some such information, but who hesitate to write us. As our advertising department is in touch with the leading manufacturers and dealers handling goods and as readers of The Canadian Horticulturist may wish to buy, we can usually furnish the desired information to inquirers, where they fail to find what they want in our advertising columns. We are always pleased to furnish any such information as may be desired by our readers.

Plans are being laid for next year's issues of The Canadian Horticulturist which will insure our publishing the strongest numbers of the magazine our subscribers have ever received. Experts are being engaged to furnish timely articles for each issue throughout the year. Every issue will be filled with the most helpful class of information, and it will all be furnished by well known Canadian authorities on the subjects dealt with. The illustrations in each issue will also be of special merit. Expert photographers have been at work this year securing photographs for publication next season when their appearance will be most helpful. Attention is being given to each department of the paper, including the fruit, flower and vegetable sections. We expect to have our plans sufficiently complete to enable us to tell you more about them in our November issue.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

The Ontario Association

A meeting of the directors of the Ontario Horticultural Association was held in the tent of the Ontario Department of Agriculture on the Exhibition grounds, Toronto, September 5th. There was a full attendance, with the president, R. B. Whyte, in the chair. An excellent programme has been drawn up, which will make the approaching annual convention a most interesting one. Flowers, small fruit and civic improvement will be discussed. The selection of the date for the convention was left to the president and secretary. It will be held during the week of the Ontario Horticultural Exhibition in November next.

LET US HAVE DISCUSSIONS

In establishing this department in The Canadian Horticulturist our desire has been that officers of horticultural societies would discuss through it methods of work that they found most successful. We would like to see discussions on such subjects; for instance, as whether or not it is advisable for societies to hold regular exhibitions. Some societies that have been holding exhibitions for years claim that by means of the exhibitions they interest the public in their work and that the competitions lead their members to put forth greater efforts to produce the highest quality of fruits and flowers. Against this it is contended that almost invariably the prizes at these exhibitions are captured by the same growers month after month and year after year, that not over five per cent. of the members of the average society draw any of the prize money offered and that more good would be accomplished were the money that is spent for prizes given for lawn and garden competitions and for the purchase of more liberal premiums for distribution among all the members. Officers of societies who have had experience in both lines of work are requested to furnish us with statements giving the results of their experience.

GALT

The September exhibition of the Galt Horticultural Society was held in the Market Hall, which was filled with unusually attractive exhibits. An entrance fee of fif-

teen cents was charged. It was feared that the dry season would interfere with the exhibits, but such did not prove to be the case. The display of geraniums was unusually fine, while asters and gladioli were shown in profusion. Ferns proved a feature of the exhibition. A novelty was a geranium three feet in diameter having over sixty blooms. Some splendid specimens of fuchsias were shown, including one "Rose of Castile" that was over fifty years old. Other novelties were a plant of Tretonnia Avaria, commonly known as red hot poker, and a specimen of the Jerusalem cherry. The exhibition was open afternoon and evening for two days.

ST. CATHARINES

The aster and gladiolus exhibition of the St. Catharines Horticultural Society was held August 29th and 30th in the armories. It proved to be one of the best of the many successful shows that have been held by this enterprising society. As usual one of the most prominent and striking exhibits was that furnished by Queen Victoria Park, Niagara Falls. It occupied a stand in the centre of the floor and was thirty feet in length by about twelve feet in width. Somewhat similar exhibits, but on a smaller scale, were shown from the gardens of Charles Riordan and Robert Dunn. One of the most important features from an educational standpoint comprised ten kindergarten tables which had been decorated by children from six to eight years of age. The character of the exhibits throughout was high class, and as the exhibits were well arranged the exhibition proved enjoyable to the many who attended.

A movement is on foot to form a horticultural society in Fort William. The Canadian Horticulturist is in receipt of a letter from Mr. W. J. Hamilton, principal of the Collegiate Institute, in which he states that a meeting for organization purposes was to take place on September 29th. Residents of Fort William are said to be enthusiastic over the proposal.

MONTREAL

The Montreal Horticultural Society, in conjunction with the Fruit Growers' Association of the province of Quebec, held an exhibition of flowers, fruits and vegetables in the Victoria Rifles Armories during September. There were over two hundred sections and cut blooms and plants were especially in evidence. Numerous wealthy residents of Montreal, such as Messrs. R. B. Angus, Senator MacKay, C. B. Gordon, Mortimer Davis and others, made large exhibits through their private gardeners. The prize for the best garden within the city limits was awarded to Mr. Rubenstein. Mr. A. H. Cook secured the prize for the best kept suburban garden. The officers of the society are Honorary. Secretary, Senator MacKay; Honorary Vice President, W. M. Ramsay; president, R. Wilson-Smith; Vice President, James Morgan.

CALGARY

The Canadian Horticulturist is in receipt from the Calgary Horticultural Society of their remarkably handsome booklet comprising over one hundred pages. It contains full copies of the different addresses and papers delivered and read before the society during the past year. The report is printed on high grade paper and deals with the cultivation of various kinds of flowers and vegetables, trees and shrubs. It reflects great credit on this society, which although only four years old, has already accomplished very valuable work for the whole province of Alberta.

The Ontario Horticultural Exhibition

The prospects for exhibits of fruit at the Ontario Horticultural Exhibition, which will be held in Toronto November 14-18, were never better than the present season. The counties of Northumberland and Durham, Norfolk, Elgin, Lambton, Ontario, Prince Edward, Leeds and Grenville, Hastings and Dundas all will be represented by magnificent displays of boxed fruit running from a carload in one case down to fifty box displays in one of the eastern counties which makes a specialty of McIntosh. In addition there will be a splendid showing of boxed fruit from the demonstration orchards of the Ontario Department of Agriculture. The secretary, Mr Hodgetts, states that the display of package fruit will be likely to open the eyes of most of the Ontario growers.

Three new sections have been added in the boxed apple classes "for the best ten boxes of Snow, McIntosh and Spy, wrapped," the prizes being $30, $20 and $10 in each case.

Another section calls for twenty boxes of Spy, wrapped, with prizes of $60, $40 and $20, while there is a sweepstakes prize of $20 for the best box of apples of any variety entered in any section of the show. All of the additions of last year to the prize list will stand, so that the exhibition offers a splendid opportunity to the up-to-date grower to show the best fruit that he can grow, packed in either boxes or barrels, with a chance also of winning one of the large prizes offered for specimen apples of the standard winter sorts. Prize lists with full information may be obtained from the secretary, P. W. Hodgetts, Parliament Buildings, Toronto.

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Ornamental Trees
Deciduous Shrubs
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Fruit Trees
Strawberries and Small Fruits
Vines and Hedges
Hardy Roses
Conifers, etc., etc.

Onlythose Plants sufficiently robust for our northern climate are grown. All Stock guaranteed. Full directions given.

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COMMAND BETTER MONEY

We make the Proper Box at the Right Price.
Send your order large or small, early, and assure prompt delivery.
Be first in the market with the most saleable fruit.

Write us To-day.

THE FIRSTBROOK BOX CO.
LIMITED
TORONTO

Suggestions from British Importers

A number of interesting letters from British fruit importers have been received by The Canadian Horticulturist during the past couple of months. Among these have been the following:

James Adam, Son and Co., of Liverpool, have the following to say: "It is hardly fair to make any comment on the packing of Canadian apples during the last two seasons as, owing to the unfavorable crops, shippers were tempted to put in apples which at other times would have been discarded. At the same time we must admit that the standard of packing leaves something to be desired, as very often small, ill-shaped apples are found in the No. 1 grade, much to the detriment of prices here; while it is a matter of regret that No. 3's are shipped at all, as small apples are rarely appreciated, and what is more, when it is remembered that the cost of transport and handling is the same as on the No. 1 grade, the results cannot leave much to the shipper. Indeed, we are inclined to think that more could be realized at home; while their presence on this side prejudices the sale of the finer fruit.

"Californian and Washington apples are well packed, the fruit being mostly of uniform size, nicely papered, and carefully packed in tiers. This we know can be done when packed in boxes and where there is a plentiful supply of uniform sized fruit of one variety, but with so many mixed varieties, such as are grown in Canada, of varied sizes and shapes, then this style of packing does not lend itself to the same extent

"For Canadian apples we much prefer the barrel, as it is a convenient package to handle and one that is favored by the trade here. We would suggest, however, that the eight-hooped barrel should be used in preference to the six-hooped barrel, as the package is then much stronger, and there is more possibility of it arriving here in good shape than when six hoops only are used."

INTERESTING COMPARISONS

One of the largest fruit importers in Great Britain, Andrew Chalmers, of Glasgow, makes the following interesting comments: "The season just finished was our first big year of box apples from the Pacific Coast. We heard many complaints from the British public regarding the lack of flavour in the Californian apple. This of course cannot be said of apples from Ontario, and as apples in boxes are a coming feature, I would recommend shippers and growers in Ontario to box a portion of their apples.

"British Columbian and Californian shippers grow apples of good size and fair quality, and I would suggest that shippers in Ontario box only 'fancy' and No. 1 stock. The latter have the advantage of shippers on the Pacific Coast in regard to freight, and if shippers in Eastern Canada pack their apples as they do in British Columbia and California, the 'wise men of the east' would soon hold the export trade.

"It is foolish to ship No. 3 stock; this size of apple never pays to export. No part of the world can grow such quality as is grown in Ontario. No. 2 stock in barrels is always wanted, and has a big sale among a certain class of buyers here. No. 1 stock, honestly packed and graded, always commands a good price.

"Fruits of all kinds, and apples particularly, are sold more and more every year

DOUGLAS GARDENS
OAKVILLE ONTARIO

PAEONIES AND SHASTA DAISIES
Belated orders for these may still be given, which will be filled promptly.

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Have been grand this year
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Freezia, Refracta Alba Glant	.04	.30	1.60
Lilies, Calla, white, large	.20	2.20	
Lilies, Chinese Sacred, large	.10	1.00	
Hyacinths, Roman, 4 colors	.05	.50	3.75
Hyacinths, Dutch, 4 colors	.07	.60	4.00
Narcissus, Paper White Grandiflora	.04	.40	2.75
Narcissus, Single, 6 varieties	.03	.25	1.75
Narcissus, double, 4 varieties	.04	.30	2.00
Scilla, Siberica	.03	.25	1.50
Snowdrops, Single	.02	.15	1.00
Tulips, single, named, 6 colors	.04	.30	2.00
Tulips, single, best mixed	.03	.25	1.60
Tulips, double, named, 6 colors	.04	.35	2.25
Tulips, double, best mixed	.04	.30	1.75

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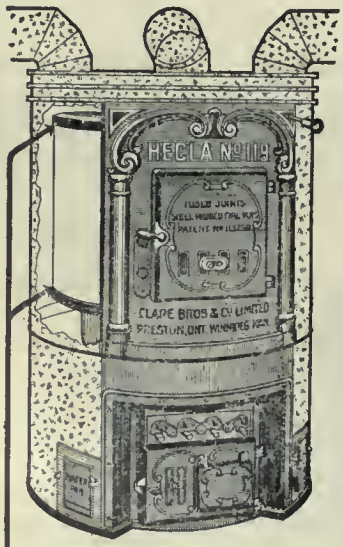
¶ No matter how cosy your home, an odor of gas, however slight, is unpleasant and sometimes dangerous.

The health of your whole house demands a furnace that will give pure warm air without gas or dust.

Gas cannot escape from a "Hecla" Furnace. Every place where experience has shown that gas might otherwise find an opening has been made absolutely tight by our **Patent Fused Joint.**

The constant expansion and contraction of the steel and iron parts cannot break this joint.



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The **air jets** in the door assure proper burning of any surplus gas.

The **Automatic Gas Damper** prevents danger from gas puffs.

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according to the brand. The day of putting large apples on top, and small ones in the centre of the barrel, is past, and shippers who want to make money in the apple business should pack and grade apples honestly.

"Private sale is coming more into vogue with buyers in England and Scotland. We are the only private sale house in Glasgow. The English buyers who attend here every week during the apple season prefer to see the top and bottom of the barrels, so that they will not buy 'a pig in a poke,' as apples bought at auction very often turn out.

"We are handling a large quantity of apples this year from Australia, which, of course, come in boxes. Only the large sized apples have a ready sale.

"The apples we handled from Ontario last year gave cause for very few complaints, and if packers and shippers would be careful in buying and packing, it would be a great pleasure handling apples compared to what it has been in past years."

A Western Buyer's Views

The Regina (Saskatchewan) Trading Co., Limited, which handles considerable quantities of United States, British Columbia and Ontario fruit, has written The Canadian Horticulturist as follows: "The pack of Washington fruit is far superior in many instances to British Columbia fruit. The early pack of peaches from British Columbia are often short in weight, the cases not being filled to their full capacity. Customers, therefore, are dissatisfied, and in some cases we have to fill the cases at our own expense. We would suggest that the cases should be either made smaller or the present sized cases filled. Plums in four basket crates, in the early season, are also lacking in this particular. We never have this trouble with fruit from Washington. The shape of the Washington fruit last year was much better than that from British Columbia, and the weight of the cases was always heavier, in some instances (peaches in particular) five pounds a case. The best way to ship plums, is in four basket crates.

"Boxes are preferable to barrels for apples for easy shipping and quick sale, and they give our customers a greater variety of apples for the same outlay, or practically so. A customer can get three varieties of apples in boxes, while they must take all one kind by the barrel, for the same quantity. We would suggest a uniform weight of about fifty to the box.

"Washington apples are better packed than most of the British Columbia stock. If all British Columbia fruit was shipped and packed as was the fruit at the exhibitions last year, it would be second to none in this country, or in the States, but there is no use having good fruit poorly packed, for the good packing of fruit does as much towards selling it as the fruit itself.

"We receive some very poor samples of apples from Ontario in barrels, especially No. 2. This, to a great extent, would be avoided by following the box system, as we can open a box on every side if necessary, and see the quality of fruit we are buying and selling. We do not mean to say that we do not receive good apples from Ontario, as Spy's, Greenings, Russets and other kinds are second to none, but we would suggest that all grades should be up to the full standard.

"Ontario plums and peaches are in great demand, but we very seldom receive shipments that are in A1 condition, and usually they are high in price compared with the British Columbia and Washington fruit.

"We have a great demand for small fruits, such as raspberries, strawberries,

etc., but the price is very high. Good strawberries this year have been $4.00 and $4.50 a case, and all other small fruits correspondingly high. We cannot help but think that with proper packing and selection of fruits, there will be no fruit grown that can excel in quality that grown in our own country."

Standards for Boxes

The following resolutions will be submitted for the consideration of the Third Dominion Conference of Fruit Growers, which will meet in Ottawa next winter, by the delegates from the British Columbia Fruit Growers' Association:

"That this British Columbia Fruit Growers' Association adopt as a standard apple box for all purposes the box 10x11x20 inches, and that we instruct our delegates to Ottawa to use every endeavor in their power to have the words, *'For export only'* expurgated from the Canadian Fruit Marks Act, Section 325.

"That the Association recommend that the four-basket plum crate be 15¾x15¾x4¼ inside.

"That the present pear box, 18¼x11x8½, be the legal size.

"That the peach crate be 18¼x11¾x4½.

"That the pear box, 8½x11x18¼, be adopted by this Association as a standard box for crab apples."

PROVINCIAL NOTES

Eastern Annapolis Valley

Ennice Buchanan

The long drought is ended. In some places farmers had to carry water. Several maples died from lack of moisture. Here and there the sun baked apples on the trees.

Apples are still clean and exceptionally free from worms. Never has there been such a large crop in Nova Scotia. The trees are breaking down under the load of fruit, which is being propped up in all directions.

Peaches are scarce, and there is quite a demand for plums.

The fruit evaporator was destroyed by fire in Berwick at the end of August.

The Kings, Hants and Annapolis Horticultural Exhibition is to be held on October 10th, 11th and 12th at Wolfville.

The big apple buyers in the Canadian Northwest did not seem inclined to buy Nova Scota fruit until they knew the results of reciprocity.

The first big frosts to destroy tender vegetables occurred here on September 14th and 15th.

All the men in the apple warehouses are very much rushed. Barrels are scarce at thirty-five cents, having gone up ten cents since the beginning of the season. It is now fashionable to head apples for warehouse by removing a hoop and covering with a sack, then replacing the hoop. This saves a lot of unnecessary hammering.

Western Annapolis Valley

R. J. Messenger

Contrary to expectations, Gravensteins, of which there is a crop of almost 300,000 barrels in Nova Scotia, are moving off without any trouble and prices are advancing slightly. Kings have sold as high as $2 25 a barrel. The D A. Ry., the principal road through the fruit belt, is to carry off the apples.

The weather has been ideal for growth, and apples are large and splendidly colored for this early period. September 18. The hot, dry weather of July and August

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Hyacinths, Roman, White	5c	.40
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Tulips, Single Early, White, Red, Yellow, Pink	20c	$1.00
Tulips, Double Early, White, Red, Yellow, Pink	25c	1.25
Tulips, Darwin Late, White, Red, Yellow, Pink	40c	—
Tulips, Parrot Mixed	20c	1.25
Daffodils or Narcissus, Large single, Yellow	40c	—
Daffodils or Narcissus, Small Single, Yellow	15c	1.00
Daffodils or Narcissus, Large Double, Yellow	30c	—
Daffodils or Narcissus, Giant Paper Whites	25c	1.50

Chinese Sacred Lilies .. 10c each $1.10 per doz.

Anemones, Grape Hyacinths, Freesias, Crocus (Yellow, White, Purple, Scilla Siberia. Any of the above, 10c per doz.

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Price per ft.	2c.	2 1-2c.	3c.	4c.	5c.	7c.

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1 Choice House Fern. Ostrich Plume.
1 Choice House Fern, Bostonensis.
1 Splendid Kentia Palm.
1 Large Asparagus Fern.
1 Xmas Cherry (in fruit).
1 Fine Cyclamen.

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has had the effect of making the season earlier by two weeks than usual.

The provincial exhibition at Halifax, owing to its early date, August 28, and also to the request of the Fruit Owners' Association, offered no prize list for fruit this year, and for the first time fruit was conspicuous by its absence.

The Horticultural Show at Wolfville Oct. 9th, 10th and 11th should, if a splendid crop of fruit is any indication, be the most successful ever held in Nova Scotia. The prize lists are tempting, the management energetic and if the orchardists are not too busy to bring the fruit we should have a banner exhibition.

Apples are being packed more in boxes than ever before. Barrels are, of course, usd by the packers for all but a few choice.

Barrels and barrel stock are very high. Barrels have reached thirty-two cents, and stock is very scarce.

Montreal

E. H. Wartman, Montreal, Que.

After having inspected a number of crates of Canadian peaches recently from the Jordan Harbor Peach Ranch, and other peach sections of the Niagara Peninsula, I felt prouder than ever that I was a Canadian. These peaches were put up systematically and carefully in one-layer crates, wrapped and padded with wood wool and nicely stencilled. The parcel was most attractive. Some specimens showed bright red cheeks. They were still very firm and I could not think otherwise than that these specimens would attract much attention and that the sales should return handsome profits.

On August 21st at our auction fourteen cars of California fruits, peaches, plums, pears, grapes, nectarines, in all 12,008 packages, were sold by Mr. J. J. Calaghan in less than three hours. This is a marvel for speed. Of the lot four hundred and ninety-four packages were open for inspection. It made a very pretty sight. The fruit was most beautifully packed and landed here in perfect order. We on this side of the line have much to learn on packing and loading cars.

Several cars of plums in baskets have landed here from Ontario loaded seven or eight baskets high, causing so much weight on the lower or floor layer that the baskets gave way and large quantities of fruit on the car had to be scooped into barrels, as the baskets were completely demolished. This was the result of a lack of judgment which will cost someone quite a loss. Although some well basketed and graded peaches are coming, yet a very large percentage are hail pecked and very wasty. This class, of course, sell low.

Many barrels of beautiful Bartlett pears when packed arrived in very wasty condition. It seems too bad, as pears are not a full crop. I would consider the barrel altogether unsuitable for pears. The basket or box would be far safer.

A word once more to those who ship apples in cattle cars, placing the heads of the barrels to the outside. A car arrived here a few days ago with five heads knocked out and a good part of each barrel gone. There should be more protection for the shipper, as these cars are reported so many short, and where is a shipper to get redress? He would gladly see the thief go to jail for three months, but how is he to get pay for his apples? There should be something done along this line.

Shippers of apples for export should feel much pleased at the very cool weather that has prevailed since shipping commenced, as nearly all have landed in good condition at this port except a few St. Lawrence and Gravensteins and such varieties.

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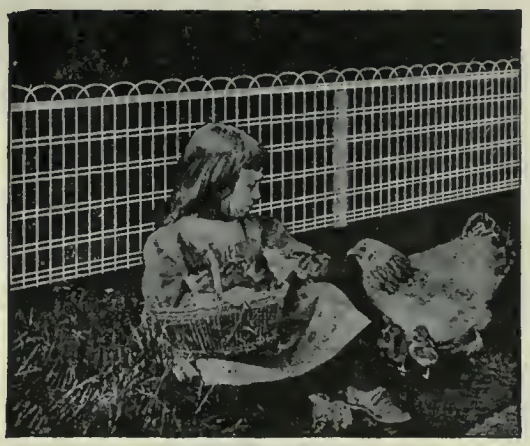

A fence of this kind only 16 to 23c. per running foot. Shipped in rolls. Anyone can put it on the posts without special tools. We were the originators of this fence. Have sold hundreds of miles for enclosing parks, lawns, gardens, cemeteries, churches, station grounds, etc., etc. Supplied in any lengths desired, and painted either white or green. Also, Farm Fences and Gates, Netting, Baskets, Mats, Fence Tools, etc., etc. Ask for our 1911 catalog, the most complete fence catalog ever published.

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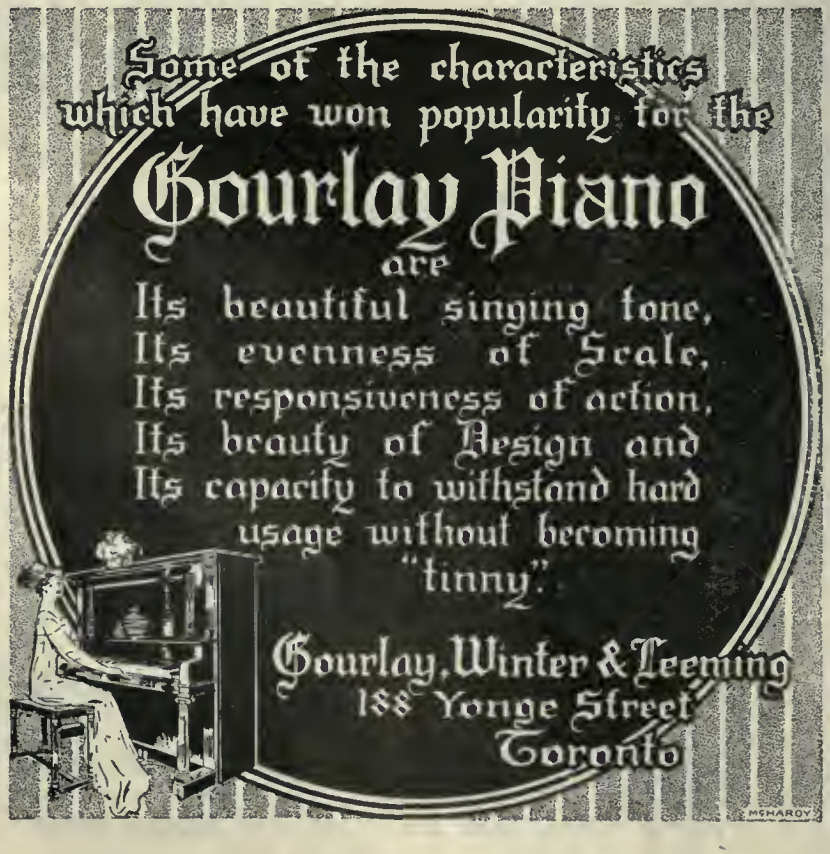
Branches—Toronto, Cor. King and Atlantic Ave. Montreal, 505-517 Notre Dame St. W. St. John, 37 Dock St.

The largest fence and gate manufacturers in Canada. 505

Some of the characteristics which have won popularity for the
Gourlay Piano
are
Its beautiful singing tone,
Its evenness of Scale,
Its responsiveness of action,
Its beauty of Design and
Its capacity to withstand hard usage without becoming "tinny".
Gourlay, Winter & Leeming
188 Yonge Street
Toronto
McHARDY

R. I. Greenings are arriving in good size and well matured for so early a date. The market is well supplied at present with fruits. The banana trade is still increasing. Seventeen cars landed here a short time ago in one day.

British Columbia

The British Columbia Department of Agriculture is making arrangements to send a thoroughly representative collection of potatoes from the various farming districts of the province to the American Land and Irrigation Exposition at Madison Square Gardens, New York, from November 3 to 12 next, where the exhibit will be entered in competition for the Stillwell trophy and $1,000 prize. An official of the department will accompany this exhibit.

Peach growing does not seem likely to prove as successful in this province as was anticipated a few years ago. Frosts on the low lands have forced many growers to abandon peach growing and to go in for the production of more hardy fruits instead. Speaking on this point recently Mr. Thos. Cunningham, the Provincial Fruit Inspector, said: "There has been a noticeable falling off in the number of peach trees imported into the province, not nearly as many came in this year as last year, and in my opinion it is a good thing, as we shall do better to confine ourselves to cherries. There has been a great increase in the number of apple trees imported."

The Provincial Department of Agriculture this year operated five power sprayers which were used to instruct growers in their use.

Some interest was aroused at Vernon, B.C., by a consigument of strawberries from the ranch of Andrew Sutherland, near One Mile Point, which were offered for sale about the middle of September. The variety was the well known English berry Givonne, which was introduced in the Kootenay a few years ago. It has proved a successful late variety. The berries were thoroughly ripe, of good size and excellent in color and flavor.

Notes from Niagara District

Linus Woolverton

The ill effects of the hail storm referred to on page 227 in the September number of The Canadian Horticulturist are just being measured up. In apples I find about one-half the crop hail pecked so badly as to be classed either as culls or as No. 3; while the other half is classed as No. 2. The fruit as it hangs is a sorry sight, so much of it was cut through by the hail so badly that rot has set in to finish its destruction. This is also very disheartening when one considers what beautiful clean fruit it all was the day before that hail storm. I am told that a grower near Grimsby was offered $1,500 for his apple crop on a Saturday and refused it. The hail came the next day and so changed the prospect that he could not sell for $300.

Peaches and pears, especially the later ones, do not show as much loss as apples; but the early varieties were mostly destroyed.

The grape crop has suffered more than any other fruit. I had the pickers go over and pull off the bad berries from a part of the rows, but found it a very slow job; the rest I left till picking time, and really it is quicker done, for the berries fall off more easily, being dried up. But at best the bunches are left very straggling, for nearly half of every bunch was destroyed. Some ten years ago we had a similar visitation of hail. One begins to wonder whether the

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for
EXPORT AND LOCAL TRADE
Special Rooms for All Kinds of Perishable Goods.

THE CANADA COLD STORAGE CO.
LIMITED
53 WILLIAM STREET, MONTREAL

Send your consignments of APPLES to the Home Country to

RIDLEY HOULDING & CO.
COVENT GARDEN
LONDON, ENGLAND

Who specialize in **Apples** and **Pears** during the Season. Personal attention Prompt account sales and remittances

Correspondence invited

GET IN TOUCH WITH THE RETAILER

We sell mainly to the best Retailers, consequently can make the highest prices for your consignments. Prompt Returns. Correspondence invited. References.

A. A. AYER & CO., Montreal

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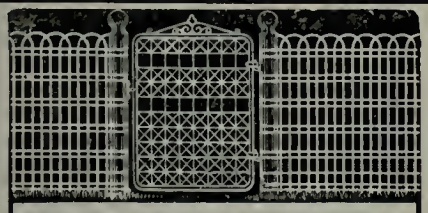
DUNDEE - - SCOTLAND



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Peerless Lawn Fence

is handsome enough for city property and is strong and cheap enough for the farm. It will keep cattle out and stand up under the heaviest snow drifts.

Peerless gates are made with an electrically-welded, solid frame—last a lifetime and always look and work well.

We make a full line of poultry and farm fences and gates.
Agents wanted. Write for particulars.

THE BANWELL HOXIE WIRE FENCE CO., Ltd.
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Tree Protected by Wooden Veneer and banked up with earth to prevent entrance of pests at bottom.

PROTECT YOUR TREES

Against Rabbits, Mice and other Vermin

Many young orchards are greatly injured each year by these pests. Wrap the trunks with

Wooden Veneers

and damage will be prevented. These veneers will protect also against sun-scald.

SEND AT ONCE TO

THE OAKVILLE BASKET CO.
OAKVILLE, ONT.

Some History
about *Typewriters*

Modern and Ancient

CHAPTER 4

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THE Underwood was the first typewriter with the standard keyboard which made scientific and invariable fingering practicable.

IT'S mechanical perfection is shown by the fact that it holds all records for speed; has won the World's Championship in 14 successive contests. It has been operated at a rate of 17 strokes a second and 130 words a minute for an hour's continuous writing.

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TORONTO

A BARGAIN

The Canadian Apple Growers' Guide.....$2.00
The Canadian Horticulturist. One Year.. .60
BOTH FOR $2.00 $2.60

TAKE ADVANTAGE OF THIS OFFER WHEN RENEWING YOUR SUBSCRIPTION

SPECIAL NO. 26 Sent to your Express Office carefully packed, for $5.00

8 BEAUTIFUL HOUSE PLANTS
AND
100 Choice Winter Flowering Bulbs
All for $5.00

We stake our reputation on this Special Bargain. The most careful buyer cannot select better quality or get more for the money. The plants are all thrifty and healthy; of full blooming size, and such only as will do well in the ordinary home atmosphere. The bulbs are those that are sure to bloom and thrive and give delight to the inmates of the home all through the long Canadian winter. Send us $5.00 and we will express to you as follows:

PLANTS

1 Choice Ostrich Plume Fern.
1 Fine Boston Fern.
1 Splendid Chinese Primrose.
1 Beautiful Cyclamen.
1 Rare Begonia.
1 Fine Cineraria.
1 Strong Asparagus Fern.
1 Large Kentia Palm.

Our regular selling price of these plants will average 50c each, and some of them we retail at One Dollar each.

BULBS

12 Early Narcissus Paper White.
12 Early Roman Hyacinths.
12 Freesia Mammoth size.
(The above are for early Xmas bloom)
12 Dutch Hyacinths (all colors).
12 Choice Single Tulips (all colors).
12 Superb Double Tulips (all colors).
12 Double Daffodils a choice assortment.
12 Single Daffodils a choice assortment.
2 Chinese Sacred Lillies.
2 Bermuda Easter Lillies.

Cultural directions for these Plants and Bulbs are found in our Catalog, which we mail free.

The above bulbs will give continuous bloom until Easter. Catalogue prices of these bulbs is $4.00.

This Order is Not Good after December 15th.

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Seedmen and Florists
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STOVE POLISH

saves the tired housekeeper work and worry. It is a convenient paste in a large can. A gentle rub with brush or cloth brings a beautiful, mirror-like shine that is not affected by the heat. For stoves, pipes, grates and ironwork.

If your dealer does not carry "Black Knight" Stove Polish in stock, send us his name and 10c, and we will send a full size tin by return mail.

THE F. F. DALLEY CO., LIMITED
HAMILTON, ONT. 30
Makers of the famous "3 in 1" Shoe Polish.

insurance against hail is not after all worth paying for.

The fruit industry has developed to such an extent hereabout as to exclude almost any other line of agriculture, especially on all garden soil such as we find to prevail just below the famous Niagara Escarpment between Niagara and Burlington Heights. Our wagon makers are making a specialty of a class of strong fruit drays, some light ones for one horse, carrying about a ton, others heavy two-horse, carrying two or three tons. One firm has made up hundreds of these useful vehicles, which have now become almost indispensible to the fruit grower.

The canning factories here are obliged to compete with shipping companies over fruit prices. There are two large factories at Grimsby, for example, and several shipping companies, of which the largest is the Ontario & Western. This company ships in car lots all over the Dominion and especially throughout the Northwest. This season they paid forty-five cents for eleven-quart baskets of Bartlett pears, and the factories about the same, and I thought it best to take this certainty rather than to export to Scotland with the hope of getting more.

I began picking and packing apples on the eighteenth of September this year, just as soon as I finished with Bartlett & Elberta peaches. They have ripened a little earlier than usual. I have just sold one carload to go to Manitoba and I believe that before many years almost all our fruit will be going to our great Northwest.

Items of Interest

Prize lists are being distributed for the second annual New Brunswick Apple Exhibition, which will be held in St. John, N.B., from October 30th to November 2nd under the auspices of the New Brunswick Fruit Growers' Association and the New Brunswick Department of Agriculture. The first exhibition, held last year, proved such a success the fruit growers of the province were much encouraged, and it is expected that this year's exhibition will show a still further improvement.

The first consignment of peaches ever received in London, England, from the United States was sold there last month. It comprised two thousand cases of peaches from the Wenatchee Valley, Washington. The Ontario peaches were the only peaches that had previously reached London from this side of the Atlantic.

The Dominion Government has instructed its fruit inspectors in Western Canada to see that all United States fruit boxes that are below the Canadian standard in size must in the future be stamped "short." Many of the United States boxes have false bottoms and are considerably smaller in other ways than the Canadian boxes, but peddlers and dealers in the past have made no distinction between them and the larger Canadian boxes.

The fruit inspection service of the Dominion Government has been organized for the present season. Two additional inspectors have been appointed, one to be located at Saskatoon, Sask., and the other in Western Ontario. Mr. W. W. Brown has been made senior inspector and will give special attention to the work at Montreal and the Lake Ontario section. Mr. P. J. Carey, in addition to his duties as fruit inspector, will devote a part of his time to demonstrations and instruction in box packing. Arrangements are being made for him to visit Nova Scotia in that connection.

Any little girl can do the churning with
MAXWELL'S
Favorite Churn.
It makes the smoothest, richest, most delicious butter you ever tasted.
The roller bearings—and hand and foot levers—make churning an easy task, even for a child.
All sizes from ½ to 30 gallons.
Write for catalogue if your dealer does not handle this churn and Maxwell's "Champion" Washer.
David Maxwell & Sons, St. Mary's, Ont.

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SHOOT?

If you do; if you ever **hunt, fish** or **trap**, you ought to know taxidermy, and be able to save your fine trophies.

Let us teach you BY MAIL to

Mount Birds **Animals, Heads and Fish; to tan Hides and make Rugs and Robes.** You can learn easily and quickly right in your own home. Extremely interesting and fascinating, and *very profitable*. We teach you all the secrets of taxidermy. You will simply be delighted with the work, and with the fine specimens you mount for yourself. Our course of 40 lessons will make you an expert. Don't neglect this opportunity, but **write today for free book and full particulars.**

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Inquire of your dealer
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NO ODOR
It dries them up.

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SPECIAL GLASS
FOR GREENHOUSES

Conservatories of The Dale Estate, Bramptoo, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS, AND WELL CUT

We make a specialty of supplying Glass for vegetable forcing houses

PILKINGTON BROS.
Limited

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Mention The Canadian Horticulturist when writing

Greenhouse Men!

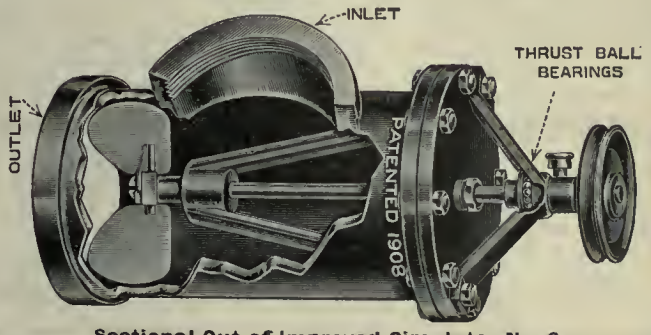
You who wish to reduce Coal Bills,

You who have trouble with your Hot Water Heating Systems,

You who wish to increase the Capacity of your Heating Systems without adding new boilers:

IT WILL PAY YOU to learn more about the "IDEAL HOT WATER CIRCULATOR" here illustrated. It is a device which can readily be attached to any hot water heating system, and by causing a more rapid circulation of the water in the pipes will greatly increase its efficiency.

It Saves 25% to 40% of Fuel



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Greenhouse men from Nova Scotia to British Columbia are using our Circulator with splendid results. We would like to tell you more about it. Write for our illustrated circular and prices.

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A FEW GOOD REPRESENTATIVES WANTED

Fruit! Flowers! Vegetables! Honey!
CANADA'S GREATEST HORTICULTURAL DISPLAY

THE EIGHTH ANNUAL

Ontario Horticultural Exhibition

ST. LAWRENCE ARENA, TORONTO, ONT.
November 14, 15, 16, 17 and 18, 1911

$4,000.00 OFFERED IN PRIZES

Many New Features have been added to the Prize List that should draw out some splendid exhibits. Write to the Secretary for full particulars and a copy of the Prize List.

Entries Close November 7th, 1911

SPECIAL EXCURSIONS FROM ALL POINTS IN ONTARIO

Ask your local railway agent for particulars

President: H. R. FRANKLAND Secretary: P. W. HODGETTS, Parliament Buildings. TORONTO, ONT.

Fruit Crop Prospects

The prospect for apples as a whole in Canada depreciated slightly during the past month. The report of the Dominion Fruit Division, under date of September 15th, states that all Duchess and other early varieties yielded medium crops which were harvested in good condition and sold at fair prices. Spys are reported scarce except in the counties adjoining Lake Huron and Lake Ontario, in Ontario, and in Nova Scotia. Baldwins will not be quite a medium crop. Greenings will be abundant.

In the United States the apple crop will be somewhat larger than it was last year. The Crop Reporter, issued by the United States Department of Agriculture, estimates the yield of apples this year at 56.2 per cent. of a full crop, compared with a yield of 46.8 per cent. of a full crop last year for the whole United States. Maine and New York have a medium crop. This is a Greening year in New York as well as in Ontario. Michigan has a much heavier crop than last year. The middle and southern states will produce less, as will also the Pacific coast states.

Though the weather conditions have improved there is no chance for more than a medium apple crop in Great Britain. Up to date, local markets have been well supplied with home-grown apples, clean and much better colored than usual. The shortage in plums will help the demand for apples only slightly. The Continental crop will be fairly good except in Germany.

In the United States the crop will permit of the usual quantity being exported. It is not probable, however, that the apples from the Pacific Coast will affect the eastern markets this year as much as last year. There is a fairly good demand from Australia and New Zealand. A single firm in Seattle is sending 50 carloads to Australia via Vancouver, B.C. There will also be a demand for western apples from the southern and middle states.

Cold storage space in the east is nearly all taken up, though large quantities of apples still remain in the hands of the growers, and eastern buyers are reported to be holding off for lower prices.

The commercial outlook in the United States is slightly depressing, and large operators are moving cautiously. In Canada, the demand from the Northwest is even brisker than last year, and facilities have opened up for supplying a much larger demand.

Cooperative associations in Ontario and Nova Scotia are now in a position to make their influence felt. Both Nova Scotia and Ontario cooperative associations have representatives in the Northwest who are greatly facilitating the movements of apples, the result of which will be a largely increased consumption. In Ontario the crop is largely in the hands of operators or cooperative associations. This condition will go far to regulate shipments so that gluts are less likely to occur either in Great Britain or at distributive points in the Northwest.

General conditions are such as to demand caution on the part of holders of large quantities of apples, but there is no reason to doubt that the present crop can readily go into consumption at reasonable prices.

In Ontario, prices to individual growers ranged from $1.00 to $1.50 on the tree, and as high as $2.00 was received in the case of special varieties. The cooperative associations are holding winter apples at from $2.00 to $2.50 for less desirable varieties and $2.50 to $3.00 for Kings, Baldwins, &c. Spys appear to be in demand at a higher price than this.

In Nova Scotia, Gravensteins, Ribstons, &c, are leaving the growers' hands at $1.50 for No. 1's, Kings, Blenheims, &c., at $2.00 per barrel.

In Nelson and Grand Forks, B. C., Wealthy and Gravensteins are selling at $1.50 to $1.75 per box to the grower.

BULBS Plant now for Spring Flowers

There is no season of the year when Flowers are enjoyed more than in the Spring. Bulbs planted this Fall will flower almost as soon as the snow is gone. Planted in pots they can be flowered in the house during the winter.

Send to-day for our Beautiful Bulb Catalogue. It gives a list of special offers. Mention this paper and it will be sent free.

A NEW HYDRANGEA

(Snowball Hyarangea—Hills of Snow)

The Hydrangea has always been a favourite garden shrub. We offer a new one which possesses, in addition to its well known qualities, the merit of *flowering all summer* and is *perfectly hardy*. Catalogue containing description of it and the best *Trees*, *Shrubs* and Hardy Plants free on request.

DUPUY & FERGUSON 38 JACQUES CARTIER SQUARE **MONTREAL**

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Growers and Shippers should consign direct to

Andrew Chalmers
Glasgow, Scotland

The only private sale house in Glasgow
Fruit not slaughtered at auction
Highest Prices for Honest Packing
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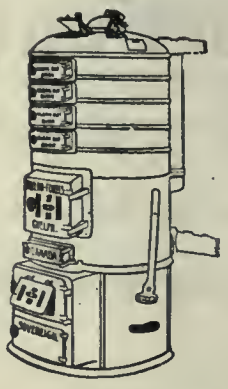

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STRATFORD EXTENSION LADDER

It is the safest and best on the market. Fitted with automatic hooks that lock at every rung and unlock between the rungs

It is
LIGHT, STRONG
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THE
Stratford Mfg. Co. Limited
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Makers of Ladders for every conceivable purpose

Excellent Fruit at Canadian National

"The display of fruit this year is without doubt the best which has ever been shown. The quality is excellent, and it is remarkably clean and free from defects." Thus, in a few words, Prof. J. W. Crow summed up the situation when discussing wth the Horticulturist the display of fruit this year at the Canadian National Exhibition.

The display of apples was particularly noticeable, both in the number and variety of the exhibits, and the quality of the fruit shown. Some very fine Duchess and Alexanders were seen. The fruit was very large, smooth and well colored. In crabs, the entries were few, but the quality was very superior, the fruit being of high color, large and exceedingly smooth. Pears were a good sample, with the exception of a few plates of Clapps Favorite, which were overripe. Peaches were exceptionally good, both in size, color and uniformity of samples, and in number and variety of exhibits. The display of grapes was much ahead of last year. They were more fully ripened, and the bunches were large and well bunched. Plums were hardly as good as last year, a larger percentage of the fruit being over-ripe.

While the general quality of the fruit was so good, one or two exhibitors left themselves open to criticism for their apparent lack of care in selecting the specimens for the exhibits. A plate of McIntosh was noticed that contained samples showing worm spots, and several specimens in this class had the stem lacking. It is important, especially in plate collections, that the fruit be perfect in every particular. In the cone exhibits of Wealthys, the collection, which was easily the best shown, contained wormy apples, and the prize was accordingly awarded to another collection.

COMMERCIAL DISPLAY

An outstanding feature of the commercial display was the exhibit of boxed fruit put up by the St. Catharines Cold Storage and Forwarding Co. The fruit was of splendid quality, well packed and attractively displayed. This exhibit contained several boxes of peaches as they are packed for shipment to the British market. Exhibits such as this should be encouraged. They would have a tremendous advertising value to the different districts represented, and would arouse much interest on the part of visitors. Were liberal cash prizs offered, as is done for the large floral displays, it would do much to encourage the different associations to undertake the expense necessary to collect and send a commercial display to the exhibition.

24 BIG CASH PRIZES

For the Best Phrase to Advertize Canadian Home Journal

One Good Idea May Win $360 or More

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Every man or woman can think of a sentence that would attract him or her. It may be something about the quality of the *Journal*, some reason why every home should have a magazine of this kind, some appeal for Canadian support. We will select the one that we think will make the strongest impression on women. Only common sense is needed:

Here are three examples of phrases that have been used:

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"EVERY CANADIAN IS PROUD OF OUR OWN MAGAZINE FOR WOMEN."

"MOST HELPFUL, MOST ENTERTAINING MAGAZINE TO ALL WOMEN."

Time of Contest

All entries must be in by Jan. 31st, and prizes will be awarded within Two Weeks. **But if two or more contestants send winning phrase, prize will be awarded to first received.**

How to Enter

Send One Dollar for a year's subscription to Canadian Home Journal and Veterinary Chart, and a phrase to be entered in contest. No phrase may be longer than ten words.

24 Cash Prizes

Fifteen per cent. of all money received by Canadian Home Journal from this contest shall constitute the prize money, to be divided as follows: 1st Prize, 40%; 2nd Prize, 20%; 3rd Prize, 10%; 4th Prize, 5%; 10% divided into 5th, 6th, 7th, 8th, 9th Prizes; 15% divided into 15 Prizes, 15-24.

Judging from the returns in other similar contests, and the wide amount of publicity given to this offer, the prizes should be at least $900. If it amounts to this sum,

1st Prize would be.....$360	**3rd Prize.....$90.00**
2nd Prize would be.....$180	**4th Prize.....$45.00**
5th, 6th, 7th, 8th, 9th Prizes, each $18.00	
Fifteen Prizes, 9-24, each .....$ 9.00	

Canadian Home Journal

is needed by every progressive woman—helpful, interesting, entertaining. It has a splendid selection of styles in the well-illustrated fashion dept., many serial and short stories by the best writers in Canada, music, recipes, menus, home decoration; children's page; helps for wives, mothers, housekeepers, hostesses; articles on Canada and Canadians. Published monthly, 50 to 80 pages, splendid illustrations, pictures and covers. **The Finest Gift to any Woman.**

Wonderful Veterinary Chart

given free with Canadian Home Journal in this contest. The Farm Stock **Veterinary Chart** covers over 80 diseases of **Horses, Cattle, Sheep, Pigs and Fowls.** It fills the demand for a veterinary adviser where symptoms and proper treatment can be seen **AT A GLANCE. ONLY PROMPT TREATMENT IS USUALLY EFFECTIVE.** Hang the chart where it is always handy. Offered for the first time in Canada, it is having immense sale. Every owner of stock realizes from experience that in many cases a veterinary will not be needed, and in other cases prompt first treatment is all that will save the animal till the veterinary arrives. Every remedy has been selected by the best veterinarian knowledge. It is well bound and glazed, and will last a lifetime. One use will more than save the cost of this offer.

Canadian Home Journal $1.00
Farm Stock Veterinary Chart ..... $1.00 } **BOTH $1.00**

Our Guarantee

Send One Dollar for the Journal and Veterinary Chart, and a phrase to enter contest. If you are not satisfied with Chart and Journal, return Chart in 10 days and we will refund your dollar, but leave you in the contest.

Send order and contest phrase to

CANADIAN HOME JOURNAL,
59 John Street, TORONTO.

CUT OUT OR COPY THIS FORM FOR EACH ORDER.

GENTLEMEN,—Enclosed find $1.00, as per your offer. Send

Canadian Home Journal to ..... Address .....

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Enter this phrase in contest .....

Send all orders to Contestant's Name .....

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Advertisements in this department inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

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WALNUTS. FOR FALL PLANTING—$2.50 per bushel, boxed and f.o.b. express or freight. Apply Geo. W. Beall, Lindsay P.O., Ont. Application and remittance should be made at once to ensure delivery.

FOR SALE, 10 000 CEDAR POSTS—Running from 2½ inches to 4½ inches top, 8 ft. long, suitable for grape growers. We want to move these at once to make room for other stock. Will make the price right for quick sales.—The John Carew Lumber Co., Ltd., Lindsay, Ont.

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The individual exhibits of fruit in commercial packages were good, but the arrangement could have been improved. Boxes and half boxes of pears were placed together, and there was no uniformity in the style of boxes used. While the difference in the dimensions of the boxes used was not usually more than from half to three-quarters of an inch in the length or height, it was still enough to detract considerably from the general appearance of the exhibit. Poor judgment was also shown in placing some of the boxes where it was impossible for spectators to see what the box contained. A first prize box of peaches was placed where it was impossible to see more than the sides and bottom of the box without the aid of a chair. A number of box covers piled on top of the commercial display was an eyesore which could easily have been prevented.

ONTARIO EXHIBIT

The display of fruit was the best ever put up by the province. This exhibit was well located and displayed to excellent advantage. The only county exhibit was that of Lambton county. The quality of the fruit in this exhibit was splendid. Some of the finest peaches seen at the exhibition formed part of this display. It was a good exhibit of the fruit growing possibilities of Lambton county.

Ginseng Growers Meet

The fourth annual meeting of the Ontario Ginseng Growers' Association of Canada was held in Toronto on September 6th, 1911. The president, Mr. James Matthews, of Acton, Ont., presided. Seven new members were accepted.

The election of officers resulted as follows: President, Jas. A. Austin, 1483 Queen street west, Toronto; first vice president, Dr. McKendrick of Galt; second vice president, F. S. Sayers of Nassagawega, Ont.; secretary treasurer, P. Wilson, 283 Evelyn avenue, Toronto, Ont. The executive committee consists of the president,, first and second vice presidents, secretary-treasurer, Rev. Dr. Medd of Goderich and H. S. Watson of Newmarket.

Vegetable Growers' Executive

A meeting of the executive of the Ontario Vegetable Growers' Association was held in the tent of the Ontario Department of Agriculture on the Canadian National Exhibition grounds, on Thursday, September 7th. The following officers were present: The president, Mr. Delworth; secretary, Mr. Wilson, and Messrs. Reeves, Weaver, Newton and Dawson.

The report of Mr. Raynor regarding the northern Ontario potato experiments was read and filed. The programme for the 1911 convention was arranged.

It was moved by Mr. Reeves, and seconded by Mr. Dawson, that the president secure W. B. Fullerton as a speaker for our convention, if possible. Carried.

It was moved and seconded that the Executive unanimously endorse the action of their President, Mr. Thos. Delworth, in opposing, through the press and on the platform, the reciprocity agreement, which will work incalculable injury to everyone engaged in the production of vegetables in the Province of Ontario, and that a copy of this resolution be forwarded to the press. Carried.

The annual autumn catalogue of J. A. Simmers, Ltd., Toronto, dealing with bulbs, plants and seeds, is being distributed. It contains much useful information. A copy of it may be had by application to this firm.

The Canadian Horticulturist

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Growing Nursery Stock in a Cold Climate*

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

THE question of nursery stock is one of much importance to the fruit grower. If he does not get the right kind of stock, no matter how closely he follows everything recommended, he will not have good success with his orchard.

It is sometimes unfortunately the case when a man orders trees, that the order is not filled by good stock and he is not able to get redress. There are several advantages, therefore, in ordering nursery stock from home nurseries. One advantage is that you can go and see the trees you are going to plant. If the trees are not satisfactory when you get them, you can return them and demand redress. This is a much more difficult process, when the man is a thousand miles away. If your trees prove to be diseased or are affected by insects it is also easier to get redress. These are some of the advantages of getting stock from a local nursery. On the other hand there are disadvantages.

The range of the native trees north to south has been determined by probably thousands of years of acclimitization. Our experiments at Ottawa for over twenty years show that native ornamental or forest trees from the south might fruit at Ottawa, but some years would be tender and kill back and not be vigorous and hardy. It has probably taken thousands of years to acclimatize those tender trees to their present northern limit. They might be hardy enough to produce seed, but the wood of individual trees keeps killing back. When we come to such apples as King and Baldwin, Rhode Island Greening, and some of the tender varieties, tender for certain parts of the province of New Brunswick, we find the same thing happening. These trees originated in a much milder climate than the province of New Brunswick. Their range has been determined largely by the relative degree of hardiness that is inherent in them, and it has been found by experience that if one introduces these trees and tries to grow them in northern nurseries, tries to grow Rhode Island Greening or King or Baldwin or any of these apples that require a long season's growth and are what we call tender, they prove a failure, they kill back, the bark splits. We cannot grow these trees in northern nurseries profitably. A tree that is tender will not be made hardier by growing it in cold districts.

How is This for Apple Bearing?

This short stalk contained twenty-one full grown apples when it was taken from the tree. Three were lost on the way to the studio. Grown in the orchard of Robert Bell, Sackville, N. B.

COMPARATIVE HARDINESS

You might ask: Will the average apple originated, say, in the province of New Brunswick be necessarily hardier than the apple which is originated, say, in the state of New York or Rhode Island? No, it might not be hardier if originated there. If I sow the seed of the Wealthy apple in the province of New Brunswick, the seedling of that apple is not necessarily hardy. Some may be hardy and some may be tender, and it will require a great number of years before one will find out which seedlings are going to be hardy in New Brunswick. When one has a seedling, say, the Merrit, which originated in the province of New Brunswick, an apple tree that has been able to withstand the cold climate year after year, you cannot say that variety is hardy because it is able to withstand the cold climate. Seedlings from a hardy tree, however, are much more likely to be hardy than seedlings from a tender tree. We have found that in our experience.

Which, you may ask, is the better, Northern or United States grown stock, local grown New Brunswick stock or stock grown, say, in the province of Ontario? Which is the better stock for us to use? Are there great advantages in growing home-grown stock, or are there not such great advantages?

CLIMATIC DIFFERENCES

In the warmer parts of Canada and the United States they have a much longer growing season than you have here. The result is that they can plant nursery stock on much richer soil than you can and have the trees ripen thoroughly. If you plant nursery stock in Northern New Brunswick, for instance, on your richest soil, your trees will not be properly ripened and will be almost certain to winter kill.

There is danger in getting nursery stock, even from a southern district, in getting it not properly ripened because trees are dug which are not thoroughly ripened. For instance, it has been the practice—I won't say it is the practice now—to dig trees in large nurseries while the leaves are still green and strip the leaves off so as to give the tree the appearance of being thoroughly ripened. You can easily see that if such trees are planted in another district they are liable to be too tender for the first winter. So that you see from my standpoint there is not sufficient evidence in regard to the quality of the trees from the southern nurseries and the northern nurseries to warrant the statement which has been made that northern stock is the best stock. For instance, I believe you can get hardy stock properly ripened in

*Extract from an address delivered before the New Brunswick Fruit Growers' Association, November, 1910.

southern nurseries and secure just as good results from them as from stock from the home nursery.

DISADVANTAGES

Some of the disadvantages of growing nursery stock at home and in colder districts include the following: There is a temptation at home to grow nursery stock in rather rich soil in order to get a strong growth and a strong tree. If you plant your trees on a clay soil or a heavy soil there will come certain years when the fall is favorable to late growth when you will lose a large proportion of fine, hardy varieties such as McIntosh Red and Fameuse. So if one wants to have home-grown stock one must grow it on soil which is not too rich. If your soil is well drained and warm your stock should be thoroughly ripened before the winter sets in.

Another disadvantage of growing trees at home is that one loses one year very often in the growth of trees if one wants to get good stock, because no matter whether you grow your trees on light soil or heavy soil, we have found in some winters in a cold climate the trees become what is known as "black hearted." This is due to the fact that the trees have made too late a growth, notwithstanding the greatest care. It may be also that trees have ripened their wood all right and a very severe winter follows while the trees are quite young, and the result is the pith and wood of the trees are damaged, but the cambium being alive the tree goes on growing next year, and unless one treats the tree the way I have described one is liable to have black-hearted trees. While blackheart may not be a very serious injury to a tree in its early history, just as soon as they begin to lose the branches disease will begin to work on the trees, and eventually the tree will decay and break down. After a very severe winter, we have found that black heart occurs in trees set out in the orchard three or four years. As a rule, I think I am safe in saying it occurs in the nursery. We want to avoid this black heart in trees.

The Silver Leaf Disease of Fruit Trees

Dr. H. T. Gussow, Dominion Botanist, Ottawa

I desire to make an appeal to the fruit growers of Canada for cooperation in preventing the spreading of this alarming disease, the "Silver Leaf" of fruit trees. Already this disease has been located in several provinces.

As the name indicates, this disease may be recognized by a silvery or milky gloss on the upper surface of the leaves of apples, plums, peaches, cherries, currants and gooseberries. In Canada authentic cases have occurred only on apples and plums, but in Europe this disease has often been found in the other kinds of fruits. It is somewhat difficult to recognize the silvery appearance of the leaves, which, however, may become so pronounced as to completely whiten with a kind of bluish white tinge, the foliage of one or more limbs, or often the whole tree.

The use of sprays like Bordeaux or lime-sulphur results in the covering of the leaves with a bluish or yellowish white film. This may give the tree an appearance not unlike "silver leaf" but on wiping the leaves, this covering is of course easily removed, while in the real "Silver Leaf" the color will remain. Hence, it is important to distinguish carefully between these two facts. In order to be sure of the disease specimens will gladly be examined and reported upon by the Division of Botany, Central Experimental Farm, Ottawa.

Growers should try to become familiar with the appearance of this disease which is by no means a new trouble in this country, but which has unfortunately escaped detection until the discovery of undoubted cases of "Silver Leaf" in Nova Scotia, a few months after I took up my duties there. No doubt every reader is familiar with the silvery foliage of some of our native willows and poplars. From a distance these trees may be easily recognized on account of the bluish white appearance of their foliage. If you bear in mind the appearance of this color when examining your orchards if you find that it is not due to any milky film of sprays, there exists the probability of the presence of this "Silver Leaf" disease. I again solicit samples of foliage, for we cannot be too careful in taking every possible step to prevent this disease from becoming a source of real danger to one of the country's most important industries.

Silver Leaf Disease in Apples

The top branch shows the silvery appearance of leaves when compared with the healthy twig below. The twigs towards the right show the fructification of the casual fungus.

NATURE OF THE DISEASE

The "Silver Leaf" is injurious to the life of the trees that have been enumerated. The trees may at first show only one limb affected, gradually another falls a victim, until the whole tree becomes involved. The disease works slowly, and it may take from three to five years before the disease has involved a whole tree. This depends naturally upon the size of the tree. During the first few years the affected branches bear some fruit, but bearing soon becomes a thing of the past and the tree dies limb after limb. It may be said that a tree once attacked nearly always dies. It is our experience that it bears little or no fruit previous. Protection practically amounts to immediate destruction of the trees which show this disease.

WARNING TO GROWERS

The "Silver Leaf" disease has been recorded and has been personally observed in the following provinces: Ontario (Ottawa only), Nova Scotia (several records), New Brunswick, British Columbia, and in the experimental orchards in Manitoba. No case has yet been received from Quebec, the Niagara district, or from any of the other provinces where fruit is grown. This must not be taken as an indication of its non-existence. I have reason to believe that the disease is very widely spread. The disease is very serious. Growers in this country are advised to examine their trees very carefully and give the disease no chance of establishing itself firmly all over the country. The fruit industry is in real danger. Without wishing to be an alarmist we cannot afford to neglect the lessons taught us by this disease in other countries, and every fruit grower should unite with the government in the efforts which are being made to arrest and control the spread of "Silver Leaf."

Stereum purpureum, the fungus which causes "Silver Leaf,' is a wound parasite. The fungus is liable to gain entrance through any wound in the bark or root. It produces its fructification on

Nova Scotia this Year will probably have a Million Barrel Apple Crop, mostly High Grade

The interior of a Nova Scotia packing house at Middleton is here shown.

dead wood only, hence its true nature has not at once been recognized. The fructification appears as more or less depressed or horizontal brackets of a dull crimson color. Remove at once all trees that are wholly involved—do not allow the stump to remain in the ground. It is generally on the stump, in, or lying on the ground where the fructification of the fungus is produced. The whole wood of any "Silver Leaf" tree should be destroyed by fire. Take the trees out any time before fall.

In the fall the fructification appears more generally. Cut away and burn any silver leaved branches, and watch the tree; if after cutting away a branch "Silver Leaf" re-appears in others, throw the tree out. When removing a tree the roots should be dug out also, then fill in the hole with stone lime mixed with soil and allow three months before planting another tree in its place. Local infections of single limbs may take place and the inoculation experiments have shown that such a limb may recover, but it is best to remove an infected limb as soon as noticed. The disease is liable to spread from limb to limb, so do not take any risks.

Fall vs. Spring Spraying

L. Caesar, O.A.C., Guelph, Ont.

OUR eastern fruit growers sometimes ask why fall spraying of apple orchards, which is being largely practiced, I believe in British Columbia and the western states and to a small extent in some of the eastern states, has neither been recommended nor practised in Ontario. It is because we have found in Ontario that our present method of spraying, if thoroughly done, gives us almost perfect control both of insect pests and of diseases. Therefore it is not necessary for fruitgrowers to make an extra application in the autumn after the leaves are all or nearly all off. To do so would mean a good deal of inconvenience, and would greatly increase the cost and labor of spraying, thereby lowering the profits of apple growing and discouraging the growers. Our aim is to secure the best results in the easiest, most practical and economical way.

If the fall application could take the place of our first spring application just before the buds burst, any person who found it more convenient to spray in the fall than in the spring might do so. But we cannot see how it is possible to do this, because the application is not made until the leaves have nearly all fallen, and by this time it is usually so cold that all growth, both of the trees and of the diseases that attack them has ceased; nature is, so to speak, dormant, or nearly so, and remains this way until the warm days of spring renew activity.

Fall spraying cannot destroy all the spores of disease, for many of them are enclosed in little protected pustules on the bark or leaves or fruit, and these often do not open until spring; moreover, in the spring the wind will bring spores for long distances, and these will lodge on our trees. By this time all the fall spray will have been washed off the trees, hence the early spring application will be just as necessary as ever to keep off our Ontario diseases. This is especially true of Black Rot Canker, which spreads in spring to a very large extent. To ward it off it is very important that before growth begins in the spring the bark of the trunk and main branches be thoroughly covered with lime-sulphur so that any wounds or winter injured areas may not afford lodging places where this fungus can germinate and establish itself.

So far as Apple Scab is concerned, neither the fall nor the early spring application seem necessary for control, though they might help slightly. The important sprays for it are (first) the one just before the blossoms open, and (second) just after the blossoms have fallen, and in very moist districts or in wet or foggy weather a third one about two or three weeks later.

INSECT CONTROL

From the standpoint of the control of insects it is probable that fall spraying would give fairly good results though I do not see how it would be quite so effective as the early spring spray before the buds burst. The main insects controlled by this spray are of course oyster-shell and San Jose scales and Blister Mite. A number of other insects are partially controlled by it but not entirely. In my experience it is a very desirable matter in the control of scale insects that the spray should remain on the tree as long as possible in the spring so that it will be there when the young insects appear. In this way, it seems to destroy a large number of these delicate little creatures. This could not take place if the application had been made in autumn as it would be washed off. Some claim that fall spraying is more effective than spring spraying against scale insects, but they have not been able so far as I know to demonstrate this, and the very opposite seems to be the case. We should remember, too, that winter iself destroys over fifty per cent. of most of our hibernating insect enemies, so that they are weakened greatly by the time the spring application is made.

WESTERN CONDITIONS

Why then is fall spraying practised and advocated so strongly in the Pacific States and British Columbia? It is, so far as I can discover, chiefly to keep under control a very troublesome fungous disease known as Apple Anthracnose

which caus s numerous destructive cankers on the smaller branches and twigs. The spores of this disease spread in the autumn and germinate during or shortly after the fall rains. Therefore to prevent their germination the plant pathologists recommend that the trees be sprayed about the time these rains are due, which seems to be early in October, and again as soon as the leaves fall or the crop is off. We have no Apple Anthracnose disease in Ontario. It is believed that the earlier of these applications helps to prevent fresh attacks of apple scab in autumn, but it is not claimed by such a reliable authority as Prof. Cordley, of Oregon, that this alone will control apple scab for the rest of the season. He practises the same spring and summer sprayings as we do.

Thus, the main reason for fall spraying in the west, does not exist in Ontario. We should, moreover, remember that the climate of the Pacific coast is much different from ours, and what may be necessary there may not be either necessary or desirable here. No harm, of course, could come from fall spraying in Ontario and anyone desiring to test it is running no risk. It certainly destroys many of the insects that a spring application would kill, and where an orchard is badly infested with Blister Mite or San Jose Scale or Oyster-shell Scale, it could be practised with much benefit until these were brought under control, but its proper place, in my opinion, is to supplement in this way and not to displace the early spring application. The proper mixture to use is lime-sulphur of the ordinary spring strength, without any arsenate of lead.

We should not forget that any system of spraying can be made more effective by proper pruning of trees and by careful cultivation of the orchard in the early part of the season, followed by a cover crop to prepare the wood for winter. These things help to make the trees themselves healthy, and allow a free circulation of air and plenty of sunlight, all of which are important in the control of insects and diseases. The destruction of fallen fruit by hauling it to the evaporator or in any other way, is one of the best things that can be practised if we want clean apples.

Locating Little Peach

A Niagara district fruit grower wrote recently to the United States Department of Agriculture at Washington to find if it is possible to determine the presence of little peach on trees planted out last year. In its reply the department states it is possible, though the identification would not be very positive. The difficulties in a positive identification come from the presence of other diseases, such as the black peach aphis, eel worms on the roots, borers, sour soil, nitrogen starvation and other weaknesses. If none of these troubles are present, or, if upon examination one can make reasonably certain of their absence, then the little peach cases stand out pretty clear.

"We have," writes the pathologist, Mr. M. B. Waite, "used the buds from trees affected with little peach more than the one-year nursery trees which show the symptoms a little but not very decidedly. These were transplanted on to rich ground here at Washington, where they developed the symptoms, though in rather moderate degree, during the first year's growth in the orchard. The trees lived along for several years, becoming more and more marked. This is equally true of peach yellows. Of course to be absolutely positive one would perhaps have to wait for the fruit, as the leaf symptoms of little peach are somewhat similar to yellows, and not always easily distinguished from the symptoms caused by the other diseases named."

Apple Packing in British Columbia*

In British Columbia every man owns his own packing house. When the pickers are started in the morning one man goes down with a load of boxes, scattering them along the trees as he goes. On his return he picks up the filled ones, takes them to the storehouse and returns and comes back with another load of empty ones. By this means there is no waste time.

The apples are picked in galvanized iron buckets with canvas bottoms. The bottom is held together with a drawstring which is loosened and the apples come out the bottom of the bucket, thus preventing any bruising. Low truck wagons are used for drawing the apples to the storehouse. The apples are graded in three grades—culls, fancy, and choice.

No man is allowed to pack his own apples. The packer who is sent by the association is sole judge of what should go in the box. In this way the grower has nothing to say about the grading, and to this factor is very largely due the high reputation of British Columbia apples for their uniform grade.

The organization of the Hood River Apple Growers has increased the price of the apples to $2.10 per box f.o.b. The price has not been less the last five or six years. The apples are sold f.o.b. station. The association formerly advertised for buyers, but now each grower estimates his yield and signs up his association for his entire crop. Last year 80,000 boxes were sold to one man. The stamp on the boxes guarantees the Hood River reputation, wherever the apples are eaten. The association gives an absolute guarantee that every box or package is honestly packed.

The number of apples in the boxes vary according to the size of the apples from one hundred to one hundred and fifty. A car will hold six hundred and forty boxes. Everything that goes east is wrapped in paper. The spring in the box amounts to a half or three-quarters of an inch on both the top and bottom. Experience has shown that the best pack is where the stem comes immediately above the calyx of the apple below. In this case the paper forms a cushion between the apples.

Many eastern people obtain a wrong impression of the apple when they see the exhibition packed boxes. The growers estimate that an exhibition will cost them from fifty cents to seventy-five cents each, while the regular rate paid the packers for putting up the commercial boxes is seventy-five cents apiece. Mr. Campbell produced eight thousand boxes, of which seventy-five per cent. were fancy, the balance choice, with the exception of about seventy-five boxes.

DEFINITION OF GRADES

The grades are as follow: Fancy, seventy per cent, good color, free from blemishes, no fungus, good shape; choice, two fungus spots, or two stings, not open, are allowed, no limit in color. Mr. Campbell obtained by spraying three times an almost perfect crop of apples, as only one-tenth of one per cent. were graded as culls.

The trees were sprayed three times: Once in the fall, as soon as the apples were picked, with the Bordeaux mixture, 6-6-50. In the spring they were again sprayed with the same application, and then again with lime-sulphur and three pounds of lead arsenate to the barrel of the mixture.

PACKING

On British Columbia apple ranches, everything moves like clockwork. The apples are brought in to well lighted sheds and emptied out on a packing table, four feet wide by six feet long. Four packers are at each table and sort the different sizes out at the same time. By this means there is much less bruising than there is where a less number are working and where the different sizes are not all packed at the same time. The packers are held responsible for the work, and are paid thirty-five cents an hour and their board. The grower gets the entire produce of the apples, with the exception of ten cents a box, which is deducted to pay expenses.

*Extracts from an address given at the Guelph Agricultural College Short Course by Mr. A. B. Campbell.

In grapes I grow the Concord and Niagara, and spray twice with Bordeaux to prevent the rot.—L. Wolverton, Grimsby, Ont.

The Decorative Use of Palms and Ferns

A. V. Main, Almonte, Ont.

WHEN selecting house plants of an evergreen nature and of the most graceful and elegant form, palms and ferns stand out pre-eminently. However lavish a mansion may be in other adornments, plants of this evergreen habit are indispensable. On the other hand nothing is more disgusting than half-dead, sickly plants.

Street Improvement by the Windsor Horticultural Society.

Excellent work is being done by the Windsor Horticultural Society in the line of civic improvement by the planting of flower beds at street corners. Three of these flower beds may here be seen.

No special care is required to keep palms and ferns healthy and green, but like most other things a few points must be given attention. In their proper culture three factors are essential—suitable soil, judicious watering, and cleanliness.

Kentia Belmoreana is, possibly, the best house plant. Others are Kentia Forsteriana and the fan-leaved palm, Lartania Borbonica. Cocos Weddelliana has fine delicate foliage and is adaptable for a table plant, but it is rather difficult to grow. Palms dislike root disturbance, particularly when in their artificial homes. That warns us to have good drainage and soil, for a larger pot is rarely needed before two years. Reckless potting and fine soil collected from, well, any odd place is not good enough. An excellent soil may be made from two parts fibrous loam, one part of fibrous peat, with sand and charcoal to shine through it, and half a cup of bone meal fertilizer. Mix thoroughly and you have a good, lasting compost.

When potting, use clean pots. Put in several pieces of broken pots, slates, or tile, and then some fibrous pieces of sod. Next set in the plant, straight, first removing the loose soil from it. Any unruly roots can be cut. Have the brown base of the leaf stalk just clear of the soil. Pack it firmly around the plant, using a blunt stick for the purpose. Avoid large pots. When repotting, a change from a six inch to a seven inch or from a seven inch to an eight inch is ample. Palms occupying eight inch, nine inch, and ten inch pots are permanently settled down, as it were, and benefit from an annual top-dressing in the spring. To do this remove two inches of the surface soil and in its place pack in some fresh compost.

When in need of water the pot will give out a clear sound when rapped on the side. A vigorous plant in a warm position will want water about every second day. If the surface is fairly dry and the weight of the pot light, it is safe to give water. By attending to their daily wants you soon know when water is wanted.

One of the worst evils of palms is to have the plant sitting in a jardiniere or other ornamental dish. This water gets sour and in time is absorbed by the soil, much to the detriment of the plant. Use a small block of wood or small pot inside the jardiniere for the pot to rest on. This is applicable to all house plants. The surplus water thus is clear of the pot. It should be emptied out periodically. The correct idea is to get the water to pass through the pot quickly. This necessitates the use of drainage, charcoal, and judgment in watering.

Bone meal or raw crushed bone in the soil is beneficial. It is a lasting manure, which it is wise to use with slow growing plants. Soluble manures are practically lost on palms. We find a weak solution of soft coal soot is the best stimulant for green leaves.

WASH THE PLANTS

Dust settling on the leaves often results in a leaf turning yellow. A couple of such leaves will disfigure a well-balanced palm. At the least, the palm requires a monthly wash or sponge, and oftener if time permits. All sorts of dirt will accumulate on the leaves, which encourages the insects that feed on the plant to its disfigurement. A small piece of sulpho tobacco soap dissolved in tepid water or ordinary soap makes a good cleanser. Preventatives to insect life are better than fighting them after their unwelcome intrusion.

Be sure and wet all parts with the sponge on either side of the leaves, particularly the under side. Sprinkle or spray with clean water after the use of the soap wash. Nothing benefits this class of plants more than a wash and spray overhead, especially in hot, arid rooms. The large, graceful leaves of glossy green hue are suggestive of moisture.

Scale and red spider are the worst enemies of palms. They gradually eat the fibre and turn the leaf into splatches of yellow. Persistent cleaning with soap and water is the remedy, but remember that unhealthy conditions at the roots give place to attacks of insects.

A First Prize Lawn and Garden at Brantford.

The home of Mr. F. Simmons is here shown which won first prize for a workingman's lawn and garden in the competition held last year by the Brantford Horticultural Society.

Practical Plant Breeding

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

IN writing this article, I feel that I am treading on dangerous ground, seeing that my profession is not that of plant breeder entirely, but that of horticulturist. However, I may be able to overcome the difficulty by approaching the matter from a practical standpoint and dealing only with that phase

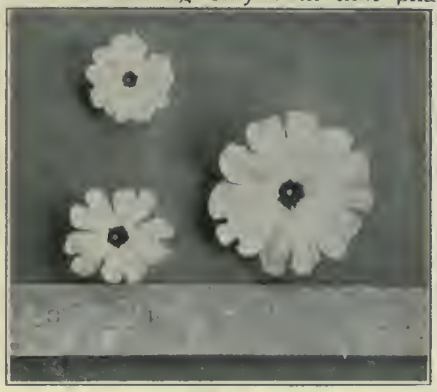

Fig. 1

connected with practical horticulture.

No matter whether we are intefested in the subject for practical or scientific purposes we must approach it systematically. We must discriminate in order to get the best results from our labors, or much valuable time wil be lost in beating around the bush. There is no reason whatever why every trained horticulturist should not become a practical plant-breeder, and the pleasure he would derive from associating himself more intimately with and understanding more fully the fundamental laws on which the science is based would amply repay him for the time spent in its pursuit. There is something indescribably fascinating about plant breeding, as one never knows what to expect; although, if we understand Mendel's Law of Inheritance and its relation to the particular group of plants with which we are working, we can predict pretty closely as to results.

The life of the man who is engaged in plant breeding is full of hope. This has a tendency to make him look more cheerfully upon the sterner duties which, as a horticulturist, fall to his lot. Even for the amateur, plant breeding has its charm, and there is no occupation more edifying, more instructive, or more worthy of man's best efforts than the production of something better than already exists, or the creation of something new, which will either aid in the beautifying of our home surroundings or be of some utility in the economy of life.

Although it is impossible to make two blades of grass grow where one grew hitherto, it is quite possible to produce a better blade of grass, a better ear of corn, or a sweeter-scented flower, which will occupy only the same space as its less worthy progenitor. There is room for improvement not only in our fruits, but also in our flowers and vegetables.

There are essentials which are necessary in order to become a skilled breeder or improver of plants, the chief of which is an intelligent mind to grasp a knowledge of the subject to be dealt with. Before a doctor can diagnose the case of a patient he must have a thorough knowledge of human anatomy and physiology. He must know the various organs which constitute the body, and understand their functions. Thus it is with the hybridizer. He must know at least something about the other branch of biology, viz., botany, without which it is useless to attempt any discriminate work, because the operator, although having eyes, sees not; that is, he lacks the knowledge to intelligently carry out his desires.

REQUIREMENTS

A good course in First Stage Botany is the first requirement. When a person has studied the morphology, and physiology of plants, he or she understands at least what the various organs of the flower, the calyx, cololla, stamens and pistil, were intended for. Secondly, a course in Systematic Botany will be

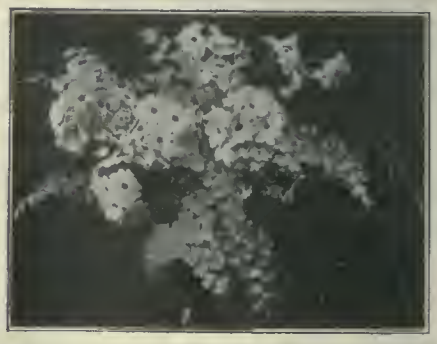

Fig. 2

found invaluable, because of the knowledge of the families or natural orders of plants that is obtained. Why is Systematic Botany necessary? Because it has been long known that plants of different natural orders will not hybridize, but plants of the same order may. Thus, when a person knows the characters of the plants which constitute an order, his chances of success in plant breeding will be greatly enhanced. It would be absolutely useless to attempt to hybridize a plant belonging to the natural order Ranunculacae with another belonging to the order Compositae. Different species of an order may cross; species of different genera of the same order occasionally cross, but rarely; bigeneric hybrids are uncommon. From the above remarks the value of Systematic Botany will be readily understood.

Where is it possible to obtain these courses of instruction? At the agricultural and various other colleges of the country and at high schools. As some idea of the requirements of plants is of great value to the hybridizer, the practical horticulturist has the advantage over his less fortunate neighbor who has never had facilities for work in this direction. A knowledge of soils, temperature, humidity, and other environmental conditions is essential in order that we may bring any class of plants to full maturity by giving them conditions as nearly natural as possible; otherwise our chances of success will be limited to the extent of our knowledge in this respect.

CHOICE OF SUBJECTS

Now, suppose we are through with all preliminaries, the next step is the selection of suitable subjects for hybridizing. The operator must have some definite purpose; there is very little to be gained by indiscriminately pollinating everything which appears likely to hybridize. The inevitable result of lack of forethought is disappointment. Some special type of plant should be selected, such as the primula, the lily, or any plant with flowers easy to manipulate at first, as plants possessing flowers more intricate should be left severely alone until the simpler flowers are mastered.

It would be well at this stage to mention the intruments which are required for plant breeding. They are not numerous, but should be of good quality. A pair of forceps, a sharp scalpel, a good pocket lens, a camel's hair brush, and a quantity of alcohol, or other sterilizing medium, in a bottle, alone are required. The forceps, brush, and scalpel must be kept scrupulously clean, and immediately after use should be sterilized. It may be found necessary to cover all pollinated flowers, and for this purpose small paper sacks are used, the dimensions of which will depend upon the size of the flower operated upon.

POLLINATION

Not having space in this short article to give the details of pollination, I may say that it simply consists in transferring pollen from the anthers or male organs of one plant to the stigma or female organs of another. As flowers are in most cases perfect, that is, possessing male and female organs, it is sometimes necessary to pollinate a flower with its own pollen or with pollen from another flower of the same plant. The primrose is a good example. In the case of "monoecious" plants, which possess both staminate and pistillate flowers, the only course to pursue is to transfer the pollen from the staminate flower to the pistillate one, or, if the staminate and pistillate flowers are

The Winning Garden in the St. Thomas Lawn and Garden Competition

The first prize garden of W. R. Rewhotham, of St. Thomas, Ont., is here shown. Mr. Rewbotham has developed it in only two years A fuller description will be given later.

borne on different plants of the same species, the pollen must of necessity be transferred from the staminate flower of one "dioecious" plant to the pistillate flower of the other. After the act of pollination is performed the flowers are covered with the paper sacks, and the operation completed by affixing a small tag bearing essential data.

Nearly everyone knows the beautiful Primrose, Primula obconica, a plant commonly grown in a great many homes. I have chosen this plant as an illustration on account of that fact, to show the possibilities of practical plant breeding.

It is plainly evident from Figure 1 that great improvement has taken place. The small flower represents the original species; the medium one, that of an improved variety called gigantea; and the large flower that of a cross between Primula obconica and Primula megasaefolia. Although the flowers of the hybrid were not larger than those of the variety gigantea originally, this enormous size has been attained by selection through several generations, plants possessing the largest flowers having been selected for seed. Up to date each succeeding generation has given us larger flowers than its progenitor.

The plant is very floriferous, and the umbellato inflorescences, which are remarkably large and borne on long, rigid stems, measuring in some cases 18 inches, are most desirable as cut flowers. In this respect a new feature is introduced. Figure 2 speaks plainer than words.

(To be continued)

Plants should have a rest, and that is accomplished by withholding water, lowering the temperature in which they grow and not giving them any stimulant.—E. F. Collins, Toronto.

Fall Care of Roses

Wm. Hunt, O. A. C., Guelph, Ont

Bush roses should have a banking of earth placed around them toward the end of the month, or early in November before hard frosts set in. The earth should be banked up in a conical form eight to ten inches high around the plant and patted down firmly with a spade, so as to pitch off the moisture. Late in November or early in December some straw or strawy manure, three or four inches in depth, should be placed on top of this. This latter covering should not be put on too early. It can be left until the first light snow has fallen. By leaving the covering off until late, the wood or growth becomes thoroughly ripened.

Tea roses or Hybrid Teas require rather more care in protecting them during winter than do hybrid perpetuals. Instead of putting the loose strawy covering over them, it is best to tie the growth up in a bunch rather closely, and then thatch it with long straw, binding it around with strong twine. The straw should be put on in such a way as to exclude and pitch off all moisture. Putting dry autumn leaves around the plants and then covering them with an inverted sugar or flour barrel is a good method of covering tender roses. This method is, however, very unsightly on a lawn.

CLIMBING ROSES

Climbing roses should be taken down from the trellis they are trained on, and the canes laid down as close to the ground as possible without breaking them. About the end of October is a good time to lay them down. Strawy manure, or straw, may be used for a covering for climbing roses. This should not be put on until quite late in November, for the reasons before mentioned. The covering should be about two or three inches in depth. Dry leaves may be used first with a light covering of strawy manure over them to keep them in place. There is some objection to leaves on account of harboring mice. Corn stalks should never be used for the same reason.

Green pine or spruce boughs make a good covering for roses. A light covering of soil can also be made use of. The latter sometimes causes damage to the canes from the weight, and if the season should be mild and wet, soil often induces mildew, and keeps the canes too green and soft by the exclusion of air, and the retention of too much moisture. Some material that will afford a slight protection, admit air, and help to hold the snow around the plants is the best material for protecting climbing roses in winter.

Planting Roses

W. G. McKendrick, Toronto, Ont.

November in Toronto, is the best month to plant or transplant roses, as the wood is well ripened and the roots take hold and start off quicker than if planted in April, when most of my planting has been done. If you cannot plant in November, April or even May will give splendid results and lots of flowers if two year old roses are purchased. If budded roses are planted, place the joint from one to two inches below the surface and

Sweet Peas, Seven Feet High, Grown by Arthur Walker, Cobourg, Ont.

compact the soil firmly with the foot.

When planting roses cut off any injured parts of roots and cut back the tops to from three to seven inches above ground. The second year prune in the spring as soon as the buds begin to show. If you want good roses cut them ruthlessly down to within a few inches of the ground and just above an outside bud, as inside buds will spoil the symmetry of the plant and not let the sun and air into the centre of the plant. The weaker the plant the harder it should be pruned.

Climbing roses need little pruning, except to cut off the dead wood. After a main shoot of these climbers has bloomed for say two seasons, it is advisable to cut it off close to the main root immediately after it has bloomed, so that a new shoot or two will be grown to take its place with fresh flowering wood to give the next season's flowers. Each variety should have a good, permanent label of wood painted white and the name legibly written with an indelible pencil and wired with good copper wire, and it will last for years. An ordinary wood label with ordinary wire will become weather-worn in one season, and the wire will rust off during the winter, and unless you have a plan of your rose bed you are at a loss to know what your roses are the next spring.

Growing Bulbs in Fibre

John Gall, Weston

AS large numbers of flower lovers are practically unable to procure suitable soil for the planting of bulbs in pots, a few articles regarding the new method, known as "culture in prepared fibre," may be of considerable interest to dwellers in towns and others. This method, if carefully managed, gives excellent results, and as there is nothing difficult about it, every one may give it a trial. Any kind of bowl or dish will suit, providing it is not less than three or four inches deep. In mostly all seed stores may be purchased vessels made specially for this method of culture, and the prepared fibre may be got at the same place.

PREPARING THE FIBRE

It is often found that the fibre has got into rather a lumpy state, so it should be pulled or rubbed with the hands so as to get it into a nicely usable form. After the mass has been thus prepared, take a fine-rosed watering pan and sprinkle lightly with water; then mix with the hands, and if necessary add a little more water. What is to be aimed at is to get the fibre just nicely moist, but not soaking wet. This is of the very greatest importance, so if by any chance the material is made too wet spread it out for a day or so to dry somewhat.

PLANTING THE BULBS

Having got the fibre in proper shape, fill the bowls or other dishes to about an inch and a half from the tops, and then gently press the bulbs into this, but on no account make the material hard by unduly pressing it with the fingers. Fill in a little more of the fibre, so as just to cover the tops of the bulbs, leaving of course, a little space for watering. A few smart taps on the table will settle the material nicely around the bulbs without the necessity of pressing much with the fingers. If the potting material is in a nicely moist state, as described above, then no water should be given.

The bowls should be placed in a perfectly dark but rather airy place. Those having a garden could set the bulbs outside and cover them over with sand, and when so treated no further attention will be necessary for about six weeks in the case of tulips, hyacinths and crocuses, and twelve weeks in the case of daffodils. If kept indoors the dishes must be examined about once a week, so as to ascertain the condition of the potting material. If it appears to be getting dry give a little water, but do not soak it. If at any time it should chance that too much water has been given, tilt the dish gently, holding one hand over the mouth to prevent the bulbs from falling out, and so allow all the surplus moisture to escape.

If these few simple details be followed success is almost certain. The chief point to bear in mind is to keep the fibre just nicely moist from the time of potting until the flowers fade.

SUITABLE BULBS

While the bulk of bulbs will succeed partially, there are a few that give very best results if fair treatment is meted out. The following may be relied on and should be used by the beginner until he sees how he succeeds:

Hyacinths—White Roman, Schotel, L'Innocence, Jacques, and any of the miniature varieties fancied.

Tulips—Vermilion, Prince of Austria, Yellow Prince and Brilliant.

Daffodils — Sir Watkin, Empress, Queen of Spain, Emperor and Henry Irving.

Crocuses—Sir Walter Scott, May and John Bright.

Early potting gives best results, and I would advise that all be got in not later than the third week in November.

Roses are particularly impatient of stagnant water about their roots, and no manner of treatment will ensure success till the ground is thoroughly drained.

Sweet Pea Culture

W. T. Macoun, C. E. F., Ottawa.

The Sweet Pea is the most popular annual grown at Ottawa. Its popularity is well merited for it possesses most of the qualities which are desirable in a flower—grace of form, delicacy and variety of coloring, long stem for cutting, and a profusion of bloom from early summer until late autumn.

The soil should be prepared for sweet peas in the autumn to obtain the best results. Soils dug in the spring with the seed sown immediately, in many cases remain loose when there is not much rain during the spring months, and they dry out much easier than they would if they were more compact. My advice would be to prepare the soil for sweet peas in the autumn, thoroughly spading a trench about two feet wide and a foot deep, and working through it some well rotted manure. This soil will become thoroughly pulverized by the frost of winter and by planting time in spring will settle down sufficiently to make a fairly compact, though by no means hard, bed.

Of almost equal importance to a cool soil is abundance of sunlight. Sweet peas do not do well in shade, and just in proportion to the amount of sunlight the plants receive so will be the success, all other things being equal.

The sweet pea requires moisture and coolness in order to develop a good root system and a good root system means good plants and good flowers. Therefore, where it is possible a site for sweet peas should be chosen where the soil is naturally cool.. A natural cool soil is usually one where there is a constant supply of moisture during the summer months. No amount of surface watering can make up for the lack of a cool soil, although good results are obtained by artificial watering even in dry, warm soils. While the soil should be cool and retentive of moisture it should be well drained as sweet peas like most garden flowers will not thrive in water-soaked ground.

Sweet peas do not require as rich soil as is generally supposed. The sweet pea belongs to the family of plants known as the leguminosæ, which are noted for the vigorous growth they make on land which is what is known as light soil. Clover, beans and garden peas are all of this nature. They obtain much of their nitrogen from the air, hence highly nitrogenous soils are not necessary for sweet peas.

No gardener can dispense with the useful hoe in his endeavor to keep down the weeds and to loosen the surface of the soil, especially when heavy rains pack the ground.—H. M. Speechly, Pilot Mound, Man.

Exhibit of Ottawa Branch of the Ontario Vegetable Growers' Association at Central Canada Exhibition, Ottawa

Screening Cabbage Seed Beds

EXPERIMENTS have been conducted for four years by the Geneva, New York, Experiment Station, in the use of cheese cloth for the protection of cabbage seed-beds against insect injuries. The results of the experiments are set out in Bulletin 334. The bulletin says in part:

The experience of farmers during the past four years, has shown conclusively that the use of tight frames, covered with cheesecloth, will entirely prevent injury by the cabbage-maggot. The use of certain grades of cheesecloth will help to prevent injury by the flea-beetle. Plants raised under cloth grow faster during most seasons and attain the size desired for transplanting about ten days or two weeks sooner than plants grown in open beds. The extra cost of screening plants in these trial seed-beds by ten different growers, ranged from six to twenty cents per thousand plants. These figures are based on very conservative estimates of the number of plants produced, with full allowance for the various items of expense. In the opinion of many of the growers who have used screens for several years, the extra cost of the cheesecloth is more than met by the saving in seed.

The plants grown under screens have good roots so that they start quickly when transplanted, while plants grown in the open are liable to suffer a varying amount of root injury, even in years when there is only a mild infestation of maggots. In addition some cabbage growers prefer to screen their beds because they may obtain sets earlier than can be grown in open beds. Usually the cabbages that are set early are the first harvested, and it happens frequently that the first sales in the fall bring a better price than the regular crop.

The screened plants are more tender than those not screened, but experience has shown that by removing the cover a week or ten days before transplanting the seedlings become sufficiently hardened so that there is very little difference in the growth of the sets in the field.

SCREENING SUGGESTIONS

The seed-bed should be located on a fertile, well-drained soil, where there can be no accumulation of water or washing under the frame by rains. It is also desirable to locate the bed on land known to be free from weeds, and injurious insects such as wire worms and white grubs. The ground should certainly be free from the disease known as club-root. The soil should be thoroughly cultivated so that it is in good physical condition at seeding time. It is customary to apply liberal amounts of high-grade commercial fertilizer. The seed should be drilled rather thickly, in rows six or eight inches apart.

When the early varieties of cabbage are to be grown, the seed should be planted during the first part of May, or even earlier, whereas such varieties as Danish should be planted about May 15. Before the seed is drilled, the corners of the bed should be staked, so that the frame can be built and the cheesecloth applied before the plants come up. This is important as the cloth prevents the soil from baking and conserves the moisture; also if the screeing is delayed until after the plants come up, the plants are subject to injury by the flea-beetle.. Six-inch boards will serve for the frame, though some growers use eight and ten-inch boards with satisfaction.

The cloth should not sag and rest on the plants. This may be prevented by stretching several lengths of wire from end to end of the bed. The wires should not be more than four or five feet apart. The wire can be supported on stakes to which it is held by staples. It is preferable that galvanized wire and staples be used as rusty wire wears holes in the cloth at the point of contact. All openings under the frame, due to unevenness in the soil, should be filled by banking the earth against the boards. To harden the plants so that they will not wilt beyond recovery when set in the field, the cheesecloth should be removed a week or ten days before transpalnting.

It is well to examine the soil about the plants at intervals of several days after they have been uncovered to ascertain if eggs are being deposited. If the eggs are numerous the plants should be transplanted as soon as possible, the earth being shaken from the roots, which will dislodge most of the eggs or young maggots. When the plants have reached a desirable size they should be transplanted, as they are liable to grow too long and spindling.

Keeping Tomatoes for Seed

What is the method of keeping tomatoes for seed and also the best way of preserving the seeds during the winter?—R. C., Montreal West, Que.

To keep tomato seed all that is necessary is to have it perfectly dry to start with and keep it in a dry place and not within reach of mice. To secure the seed, select typical, well-ripened specimens and crush them up by placing the mass in a dish to undergo fermentation. This will take from two to three days, depending upon the temperature and the ripeness of the seed. The riper the seed and the higher the temperature the quicker the fermentation. This process is necessary in order to easily separate pulp from seed. It is well to stir the mass two or three times during fermentation. After this the seed may be thoroughly washed through a sieve, and after all of the pulp mass is removed they are thoroughly dried in the sun.—Prof. W. S. Blair, Macdonald College, Que.

A good roothouse can be made by digging a cellar four feet deep and constructing over it a house well roofed with cedar. Around the sides, bank with earth about two and a half feet deep, using sods as the first tier, next to the wood. Keep the house dark, but ventilate every twelve feet.—Jas. Guthrie, Dixie, Ont.

The Canadian Horticulturist

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OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables:

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

OUR NEW MINISTER

The appointment of Martin Burrell, M.P., of Grand Forks, B.C., as Dominion Minister of Agriculture, should mean much to the fruit interests of the Dominion. The former Minister of Agriculture, Honorable Sydney Fisher, represented a dairy constituency and a dairy province. Under his administration the dairy industry was promoted in many ways. The fruit industry was materially helped also, especially by the passing of the Fruit Marks Act, but many felt that possibly it did not receive the attention in some other ways that it might have been given.

Our new minister of agriculture represents a constituency and a province in which the fruit interests are the chief agricultural factor. While we may expect that all branches of agriculture will receive their full share of attention at his hands, we may rest assured that the fruit interests of the Dominion will be given every consideration under his administration. At one time Honorable Mr. Burrell was favorable to the fruit division being separated from the dairy division and placed under the management of an independent commissioner. This possibly may be done. We may expect also that conferences of fruit growers from the different provinces will be held more frequently hereafter than they have been in the past. Should these be held regularly, even only every three years, they would be a great benefit to the fruit interests. The holding of national fruit shows may also be encouraged. There is much that may be done for the fruit interests, and Hon. Martin Burrell may be depended upon to give them every consideration.

LOOK OUT FOR FRAUDS

This is a season of the year when we should be on the lookout for fraudulent nursery agents. Almost every year some new method of gulling some at least of the public seems to be devised by sharpers who represent themselves as agents for known and unknown nursery concerns. These agents frequently come to Canada after having worked their game successfully in the United States. Only last week the Ohio Experiment Station found it necessary to issue a warning against agents who were selling one year seedling nursery stock.

The public should be on its guard against men who pretend to have some new and wonderful variety of vegetable or fruit, and should insist on being shown reports by experiment stations showing that the stock has been tested and proved to be worthy. Our reliable nursery firms make it a point to equip their agents with credentials which may be seen upon request. There is no reason why any person, other than those unduly anxious to get rich quick, should be gulled by these frauds.

PREMIUM LISTS

Each year many of the horticultural societies in Ontario distribute lists of premiums among their members. The preparation of these lists envolves much labor and thought on the part of the officers of the societies. Some societies which are fortunate enough to have experts and enthusiasts among their officers, who are willing to devote considerable time to this work, issue much better lists than are distributed by other societies. The different societies would be greatly helped each year did they have the privilege of seeing the lists issued by other societies. How would it do for the secretary of the Ontario Horticultural Association to collect a number of these lists and publish them in connection with the annual report of the association.

The horticultural societies of Ontario will be holding their annual meetings in November. Many of them will appoint delegates to attend the annual convention of the Horticultural Association that will be held in Toronto this month. Were any considerable number of the societies to make a recommendation to this effect we feel sure that their recommendation would be acted upon. Here is an opporunity for the taking of action that should prove helpful to all our societies.

STARTING A LIBRARY

Last month we suggested that the Ontario Horticultural Association might well undertake the offering of prizes for the best essays by members of horticultural societies on the growing of flowers as was done this year through the private efforts of Mr. Hermann Simmers, of Toronto, and Mr. R. B. Whyte, of Ottawa. In the event of this proposal being acted upon, we would like to suggest further that the competition should be made an annual event.

Prizes could be offered one year for the best essays on the growing of roses. The prize-winning essays could then be published in the annual report of the Horticultural Association. The next year prizes could be offered for the best essays on the growing of some other variety of flowers, such as sweet peas, bulbs, geraniums or any one of many others. By publishing the prize-winning essays each year in the report of the association, these reports would become very valuable, and members of the horticultural societies would be encouraged to preserve them. In the course of a few years the reports would become valuable as a reference library that would contain full directions in regard to the best methods of culture of practically all the leading varieties of flowers. The expense connected with such a competition each year would be light. We trust that the association will decide to act upon this suggestion and to improve upon it in such ways as its officers may suggest.

TIME TO PROTEST

A vigorous protest should be lodged in connection with the management of the horticultural building of the Canadian National Exhibition, Toronto. This building was erected at the request of the fruit, flower, and vegetable growers. When it was completed it was understood that it would be used solely for their purposes. At first this was done. During the past couple of years, however, the management of the exhibition has located the provincial exhibits in this building, with the results that this year the vegetable and much of the fruit exhibits had to be displayed in tents outside where thousands of people who visited the horticultural building did not see them.

Some years ago a dairy building was erected to accommodate the dairy exhibits. Year by year, however, the exhibitors of dairy appliances and dairy products have been forced to show their exhibits in other buildings, while space in the dairy building proper has been given over to the sale of ice-cream and to other concessions not entitled to such consideration. The dairy building in consequence has lost much of its value to those interested in the dairy industry. Unless our fruit, flower and vege-

table growers take concerted and vigorous action immediately they are likely to lose the use of the horticultural building for the purpose for which it was intended. They should refuse to be put off with promises, and insist on being granted their full rights in connection with next year's exhibition.

PUBLISHER'S DESK

OUR ISSUES FOR 1912

Last month we told our readers that we were planning a series of articles on the growing of fruit, flowers and vegetables for each issue of The Canadian Horticulturist during 1912. Our plans in regard to these issues are now practically completed. Leading growers in all parts of Canada have promised to contribute the special articles for which we have asked, and thus we are assured, that the various issues of The Canadian Horticulturist next year will be incomparably the best we have ever published.

During the year we will publish three special issues. These will include the February number, which will be devoted to spraying, both in the orchard and garden. The April number will be our first garden annual, and the September issue our second special packing number. Space does not permit of our giving an outline in this issue of all the special articles which will be published in the various departments of all twelve issues next year. Suffice it to say that timely articles on fruit growing will be published from the pens of fruit growers in all the leading fruit provinces and from government authorities, practically all of whom have national reputations.

In the floral department there will be a series of twelve articles, one appearing in each issue, describing leading gardens in various cities and towns. The first of these articles will appear in our January issue. It will describe the garden of Lady Grey at Ottawa, now the garden of the Duchess of Connaught. It will be written by Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, who helped Lady Grey to plan and arrange it. Gardens owned and conducted by amateurs will be described in later issues by such well-known contributors, among others, as Miss M. E. Blacklock, of Toronto, and Mr. Buck, of the Central Experimental Farm, Ottawa.

In each issue throughout the year will appear a page of timely suggestions for amateur flower growers. This material will be furnished during the first six months of the year by Mr. E. I. Mepsted, of Ottawa, a past president of the Ottawa Horticultural Society, during the following three months by Mr. H. E. Gould, of Sussex, New Brunswick, one of the best known writers on floral subjects in Canada, and during the last three months of the year by Mr. J. McPherson Ross, of Toronto, whose ability as a writor is well-known to readers of The Canadian Horticulturist

In addition to the foregoing articles, special articles of a timely nature by such well-known contributors as Mr. Wm. Hunt, of the Ontario Agricultural College; Mrs. A. L. Jack, Chatequay Basin, Que.; John Cavers, Oakville; E. F. Collins, Toronto, and by a number of successful amateur flower growers will appear from month to month. Among these special articles will be some devoted to the fighting of insect pests, the use of fertilizers and timely planting tables.

Special articles have been arranged also for the vegetable department for each issue of the year. These will deal with the use of fertilizers, methods of cultivation, the growing of special crops, spraying and fumigating for insects and other timely and valuable subjects.

This year some fifty horticultural societies in Ontario subscribed for The Canadian Horticulturist for all their members. We can assure these societies and any others which may decide to follow their example, that if they decide to subscribe for The Canadian Horticulturist again next year they will give their members unusual value for their money. In spite of these and other improvements, we are planning for 1912, thesubscription price of The Canadian Horticulturist will remain as at present only sixty cents a year, or two years for one dollar, with special rates for horticultural societies and fruit growers associations.

Honorable Martin Burrell
Dominion Minister of Agriculture

Canada's new Dominion Minister of Agriculture is a practical fruit-grower. Born in 1858 at Farington, Berks, England, he came to Canada in 1883. A horticulturist in vocation, he tried farming in the Niagara Peninsula, and did considerable work as a farmers' institute lecturer, bnt later the productive areas of southern British Columbia attracted him. In 1899 he became associated with the fruit industry around Grand Forks, B. C., where he conducted a large fruit ranch that has been looked upon as being a model. An illustration of this orchard appeared in our April issue, and an article by Mr. Burrell, describing it, in our August number. He also established a nursery, and is a member of the British Columbia Board of Horticulture, and has frequently acted as a judge at fruit fairs, including Vancouver's big apple show.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Horticultural Convention

Each year the annual convention of the Ontario Horticultural Association grows in interest and importance. This year's promises to be no exception. It will be held in the City Hall, Toronto, Thursday and Friday, November 16 and 17. At the opening session Thursday afternoon will be given the address of the president, R. B. Whyte, Ottawa; the report of the treasurer, H. B. Cowan, Peterboro, and the report of the superintendent of horicultural societies, J. Lockie Wilson, Toronto. Addresses will be given also on "Sweet Peas, Varieties and Cultivation," by T. D. Dockray, Toronto, and on "The School Garden," by Harvey Gayman of Jordan Harbor.

Thursday evening addresses will be given by Hon. J. S. Duff, Minister of Agriculture, and by Mrs. Dunnington-Grubb of London, Eng., on "The Modern Home and the Garden City Movement." This address will be illustrated with limelight views. There will be an address also on "The Care and Arrangement of Lawns," by J. A. Thorne of New York.

The Friday morning session will be devoted to the nomination of officers, the presentation of reports and to addresses on "Spiraeas," by W. T. Macoun, Ottawa, and on "The Broadview Boys' Institute and Its Field of Work," by the superintendent, C. J. Atkinson, Toronto. The concluding session Friday afternoon will be devoted to the election of officers and address by C. C. James, C.M.G., Deputy Minister of Agriculture, Toronto. An address on "Currants and Gooseberries" will be given by R. B. Whyte, and one on "Gladiolus," by John Cavers, Oakville. There will be single fare rates to the convention from all points in Ontario. A large attendance, especially on the part of members of horticultural societies, is expected.

Nomenclature Committe

A meeting of the Nomenclature Committee of the Ontario Horticultural Association

(*Continued on page v*)

Why Do They Pay It?

A single full-page advertisement in some of the leading magazines costs anywhere from $1,000 to $7,000, or more. A one-inch advertisement in these magazines costs as high as $140 for a single issue.

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Advertisers in The Canadian Horticulturist are paying their money for the privilege of telling you about their goods, or the service they have to offer you. They believe in their goods. We believe in them, too, else these advertisements would not be appearing in The Canadian Horticulturist.

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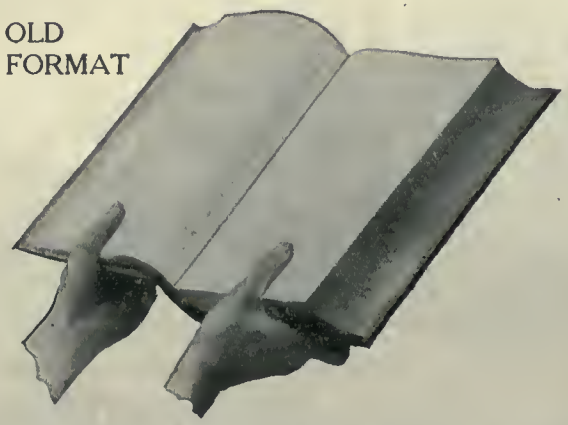

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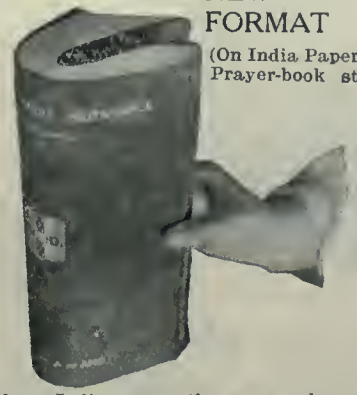

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Notes on the Old Country Markets

W. A. MacKinnon, Canadian Trade Commission, England

IN no other market of the world is the question of packing and packages so important as in England, where purchasers of all classes of goods are accustomed to see them put up attractively as well as substantially. This is particularly the case with fruit, whether it be the package used in transit or that in which it is displayed for sale, and it is on this side that competent observers declare Canadians to be behind some of their competitors.

A few words, therefore, on the various packages seen on the British market may not be amiss, even though it would not be desirable in every case for Canadians to copy the methods of the Old Country or of other competitors.

SMALL FRUITS

Taking first small fruit, such as strawberries, raspberries and currants, the popular package used in the home market is what is known as the "chip," an oblong basket commonly measuring twelve inches by six and one-half inches and holding about six pounds of fruit, provided with a handle of wood or metal. These are, in fact, very similar to Canadian ten-pound grape baskets, but slightly wider, shallower and shorter. Strawberries are picked direct into these baskets, and are sometimes shipped away without any covering. At the most a piece of thin pink or white paper is placed over the fruit, the edges turned down and tied with string running round the outside of the basket.

The old method consisted of packing and shipping the fruit on wooden trays, holding twelve pounds each, which trays were returnable by the railways. The "chip" is considered in every way superior to the tray, whether for berries or for currants.

French shippers send to this market large quantities of strawberries packed in small wooden boats, which consist simply of a flat bottom with sides and ends sloping outwards, barge-like. These are filled with fruit and then tied together in pairs, each forming, as it were, a cover for the other. The "boat" holds from three to four pounds of fruit, and owing to its solidity and the ease with which the double package can be tossed from hand to hand in trans-shipment (there being no vacant space to allow play for the fruit) this style of package seems quite popular, and was strongly supported at a recent meeting of fruit growers, convened to consider the question of improvements.

PLUMS

English plums are usually sent to market in round and rather shallow wicker baskets. They are called "half-sieves" or "half-bushels," and hold about twenty-four pounds of plums. They usually have the name of the dealer printed on the outside, and are called "returnables," as they have to be sent back to the dealer, having cost him about one shilling each. This kind of package is also very popular for gooseberries, best pears and cherries.

Choice plums have been shipped somewhat extensively from South Africa here, with success. They have been packed in shallow wooden cases about three inches deep, well protected with wood-wool at top and bottom of case, each fruit being wrapped in paper.

The package considered most suitable for peaches is the shallow wooden case about four inches deep. The bottom should be covered with a thick pad of fine wood-wool, on which the peaches are placed, each wrapped in paper, and separated from one another by little pads of the packing material. Another layer of wood-wool should cover all.

Holland has been sending peaches to this market, and on the whole the experiment was proved successful. They also adopted the single layer package now so popular, but used a different kind of packing. Instead of wood-wool, cotton-wool was utilized. The boxes were first of all lined mith this material; then each peach was wrapped in it, and wads of the same placed between as a protection against bruising. This packing material, however, is considered here to be much too "heating," and the wood-wool is declared to be superior in every way.

PEARS

Home-grown pears are packed in the same way as plums—in round, shallow wicker baskets—and it is said that it will be difficult to improve on this kind of package.

French pears come to England packed in two-layer wooden cases, commonly made of slat-wood, holding about twelve pounds of fruit. The pears are placed on a bed of wood-wool and covered with another layer. More pears are placed on top of this, and a further pad of wood-wool covers all. These pears carry very well, but some receivers would prefer that each fruit should be wrapped in paper.

As is very well known to Canadian exporters, quite the most familiar package for apples in these markets is the barrel, which occurs in three types—the flat-hooped Canadian barrel, the Nova Scotia spruce barrel with half-round hoops, and the United States barrel, which is simi-

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lar to that used in Ontario but, like the Nova Scotia barrel, slightly smaller. Of this package little need be said beyond the fact that for the great bulk of the ordinary crop of every year it is perhaps the best that can be devised. The use of eight hoops instead of the ordinary six is well worth the extra cost, both as producing a firmer and more rigid barrel and as providing most effective insurance against collapse of the package through the breaking of a single hoop.

BRITISH-MADE PACKAGES

By way of contrast, the home-made packages found in this market may be mentioned. They vary greatly in size, shape and material, but for the most part are of the hamper type, being closely woven, square-cornered wicker baskets, unprovided as a rule with covers. These hampers are lined with straw or other soft material, and the fruit appears to be poured in without any attempt at arrangement or packing, though indeed it is sometimes the case that the best fruit is reserved for the last. "topping off" the package most effectively.

In such packages as these some of the best home-grown fruit is offered for the markets. Even Ireland, which is beginning to produce some excellent varieties and to make good profits, does not seem to have seriously considered the desirability of adopting a package which will show the fruit at its best. There is no possible doubt that English and Irish apples would bring a much higher price if growers took the same trouble to grade and pack them as they do with smaller fruits.

THE FORTY-POUND BOX

At the other extreme from the careless style and methods of English packers, is the product of those who have adopted variations of the standard forty-pound box as known in Canada. Many of Canada's keenest competitors use this package to the exclusion of all others. Beginning near home are the shippers of the Oregon Newtown Pippin, looked upon by many as the finest dessert apple that can be purchased in this country. These are never sent in anything but the box, neatly packed in rows and tiers, the number of the latter being indicated on the outside of the package. California Newtowns, inferior to those from Oregon and bringing shillings less per box in the market, are also carefully put up, each fruit being wrapped in paper, and the box exactly filled with specimens of a nearly uniform size. Australia has a somemhat similar package though frequently of rougher and harder wood. making not so good an appearance, and South Africa has followed suit to such good purpose, that many consider the South African packing to be the best in the world.

As pointed out in a recent report by the Acting Trade Commissioner for Manchester, the trade in boxed apples is visibly and vastly increasing every year, and yet Canada has almost no part in this increase. Whatever may be said for the fact that importers here are accustomed to and therefore prefer Canadian apples in barrels, it is obvious that the same fact holds good for United States fruit in general, yet this has proved no obstacle to the Oregon and California packers who find ready market for their goods, though never put up in barrels. It may be said at once that the difference lies in the fact that the latter ship nothing but choice fruit. and therein does indeed lie the secret, though it cannot be truthfully asserted that Californian consignments contain no inferior lots. Still, in the main, it is true that the British storekeeper or consumer likes to find in a box only carefully selected first quality fruit.

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would deny for a moment that Canada has annually an immense quantity of strictly first-class fruit to export. When it is urged that she should take advantage of the increasing demand for boxed apples and secure her rightful share of this trade, it is always and only intended that she should adopt the small package for finest varieties only and for carefully selected specimens of these varieties.

It is only fair to state that British Columbia has set an example which the rest of Canada would do well to follow. The boxes of British Columbia fruit are beautifully packed, and as the fruit itself is always most carefully selected, these boxes have established a reputation second to none in Great Britain. The only complaint ever heard is that so few of them are put up.

There may be many reasons why British Columbia is not able to export larger quantities of choice fruit packed in boxes, one of which is the lucrative market offered in the nearby Provinces of Alberta and Saskatchewan, but such reasons do not apply as obstacles to Eastern Canadian shippers adopting the methods of the West. Obviously it will be quite easy to lose money through lack of care in selection or in packing the fruit, but there is every reason to suppose that any who undertake the matter seriously and ship to this country forty-pound boxes neat and attractive looking on the outside and containing nothing but choice fruit, will undoubtedly reap a rich reward.

REVIEW OF APPLE SEASON

The following extracts from the first apple report of Messrs. Woodall & Co., for the season 1911-12, deal with the receipts of last season and the prospects for that which is beginning:

The receipts last season at Liverpool, which lasted to the end of April, have been, including boxes calculated at three to the barrel, 638,373 barrels, as against 870,168 barrels during 1909-10, the total arrivals into the United Kingdom being 1,642,202 barrels. The past season must be considered satisfactory to shippers, as there was a high range of prices, and towards the close some record sales were made for barrels.

The increased quantity of box apples, mostly California and Oregon, was again a noticeable feature, being approximately 360,000 boxes, as against 170,000 boxes in the season of 1909-10. The quality was generally satisfactory, the condition, with the exceptions of a few occasional cars, were good. There was an active demand throughout, and results should meet the approval of shippers.

The prospects for the coming season may be considered about an average. The early marketing of English apples may perhaps cause a lower opening range of prices, but their quality does not compete when American and Canadian begin to arrive, and this season they will be probably less attractive than usual.

Extensive Operations

On several occasions this season we have drawn attention to the extensive operations being conducted in Ontario and to some extent in Quebec by the Agency Land & Securities Company, Ltd., and the National Land, Fruit & Packing Company, Ltd. These companies have leased and purchased several thousand acres of fruit land and have been managing them in a manner that has attracted wide attention. They have had at work constantly throughout the spraying season forty power spray outfits and have applied thousands of gallons of spray material. They had at work during the pruning season over one hun-

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Hyacinths, Roman, White	5c	.40
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Tulips, Single Early, White, Red, Yellow, Pink	20c	$1.00
Tulips, Double Early, White, Red, Yellow, Pink	25c	1.25
Tulips, Darwin Late, White, Red, Yellow, Pink	40c	—
Tulips, Parrot Mixed	20c	1.25
Daffodils or Narcissus — Large single, Yellow	40c	—
Daffodils or Narcissus — Small Single, Yellow	15c	1.00
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Chinese Sacred Lilies .. 10c each $1.10 per doz.

Anemones, Grape Hyacinths, Freesias, Crocus (Yellow, White, Purple, Scilla Siberia. Any of the above, 10c per doz.

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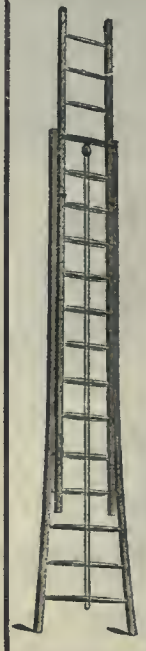

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dred and fifty men. The value of this work may be more fully realized when it is stated that in this way one hundred and fifty thousand formerly neglected apple trees have had their first season of attention.

The assistance that work of such magnitude will give to those who want to improve their own orchards, and to others who are operating properly, is inestimable, and this is but a start for this company, which intends to lease as many more trees during the coming winter. In fact they state that were it not for the unreasonable attitude of the owners of neglected orchards they would have been renovating this year two or three times as many trees.

This type of man (the owner of a neglected orchard) does not readily lease at a rate which is profitable to the operator, and the would-be operator is compelled to stand by and see the neglect continue its ravages, knowing that next year he must offer even less and knowing full well that the owner will take less if he only waits long enough.

On the other hand, many, of course, have been stimulated to improve their own orchards and thereby withdraw their property from the list of leasing orchards, but they are few in proportion, and so the company expects to very materially increase its acreage next year.

In operating the company works through district superintendents, who have charge of a definite list of orchards in one locality and under whom are working foremen and their gangs. This year the compay has selected the best men available and further improved them by instruction. Next winter it is planned to have these men take a course in special instruction on the renovation of old apple orchards, so that for next year's work this company will have a corps of instructed and trained men who, when turned out to operate on 300,000 trees, will make a wonderful increase in the total apple production of Ontario. One of its officials states that this company, in addition to making a monetary success of its undertaking, will be the greatest single factor up to date in the improvement of the apple industry of Ontario.

$5,000 Prize for Sweet Peas

The prize of $5,000 offered by the London Daily Mail for the best bunch of sweet peas, shown at the Festival of the Empire, Crystal Palace, London, Eng., was won by Mrs. D. D. Fraser of the Manse, Sprouston, Kelso, Roxburghshire; the second prize of $500 went to Mr. H. W. Richards of Ryde, Isle of Wight, while the third prize of $250 fell to Rev. David Denholm Fraser, the husband of the winner of the first prize. The blooms in the winning bunch were carmine, pink, and maroon, and they won because they were the best grown, best in size, color and condition, and because there were four blooms on each stem. Of the 38,000 bunches received 10,000 were on view at the Festival of Empire. The awards were made by ten judges. In the first prize bunch the award went for length of stem and size of bloom.

The winning bunch comprised a group of eleven stalks—one beneath the maximum number allowed, and the blooms ranged from pale pink, through shades of rose, down to the darkest purple. Another interesting collection was that of artificial sweet peas, done in various materials, frilled paper, silk, muslin, and so forth, all marvellous imitations of the real flowers.

The Canadian Horticulturist is a No. 1 O.K. magazine and is growing better all the time.—Dr. W. F. Hool, North Coaticook, Que.

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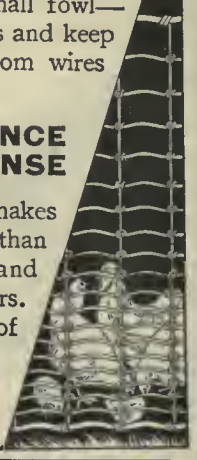

Buy an IHC Cream Harvester Instead of Another Cow

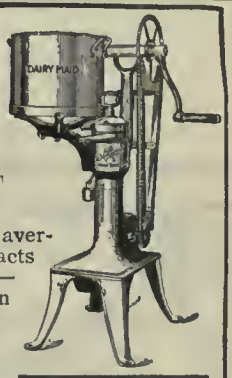

FIGURE up the profit per year and the total profit your average cow pays during her lifetime. Then get the facts about the profits an I H C Cream Harvester makes—in extra butter-fat, in extra hog-profits from skim milk, in work and time saved, and in the many other ways, all shown in our catalogues. It won't take you long to see how you could profitably buy an I H C Cream Harvester instead of another cow. The total profits paid by an I H C Cream Harvester will amount to much more.

Keeping cows without a separator is like harvesting wheat without a binder. But you must be careful what you buy. If you want to be sure of getting the closest skimming, easiest turning, and easiest cleaning separator made—choose one in the I H C line—

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17

Ottawa Vegetable Growers

The Ottawa branch of the Ontario Vegetable Growers' Association has carried out an interesting programme during the present season. In June they held their regular monthly meeting in the gardens of Mr. Conrad McConnell, and the president, I. A. Farquharson, on the Aylmer road. during the strawberry season. Both gardens presented interesting subject matter for discussion. The feature of Mr. McConnell's garden was his extra choice plot of strawberries and a large field of promising tomatoes. The feature of Mr. Farquharson's garden was his large field of early cabbage, and a promising plot of Herbert raspberries, which later yielded him at the average of $25.00 a row of about one hundred feet.

The July meeting was held at the Experimental Farm and the Ottawa Nurseries, the Herbert raspberry being the feature at both places. At the Experimental Farm the visitors were shown several seedling apple trees, that promise to be valuable for commercial planting.

In August the gardens of Jas. Cox and J. McMullen on the Montreal road were visited. Melons and high-class apples were a strong feature at both places.

The September meeting took place in the gardens of W. Trick, Ottawa South, and W. Hull, Herb Bailie and H. P. Carstesen, all of Billings Bridge. Excellent onion crops were seen in all four of these gardens; the tomatoes were fair, but some large cauliflower fields, like all others in the district, were poor, the dry, hot summer having ruined all the cauliflower in the district.

The Ottawa branch received a grant of twenty dollars from each of the three townships of Nepean, Gloucester and South Hull, and fifty dollars from the city of Ottawa. This money has been granted in prizes for exhibits at the Central Canada and Aylmer, Que., shows and for field crop competitions in onions, cauliflower and tomatoes. Mr. T. G. Bunting, assistant horticulturist at the Central Experimental Farm, acted as judge of the field crops and made awards as follows: Block of five hundred or more tomatoes—First prize, C. McConnell; second, W. Hull. Block of one thousand or more cauliflower—First, W. McCurrie; second, H. P. Carstesen. Block of five hundred square feet of onions—First, Herb Bailie; second, W. Trick. The judge recommended that a third prize of two dollars be given H. P. Carstesen for onions, as his field was very creditable, but hardly good enough to win against the two above named. The first prize in each case was six dollars, and the second prize four dollars. The association made a special demonstration exhibit at the Central Canada Exhibition, consisting of specimens of practically everything grown by the local gardeners This exhibit was later given the city hospitals.

Cooperative buying of supplies, and the excellent and instructive meetings held have been a great incentive to new membership, and the branch has nearly doubled its membership this season. Addresses were delivered at the June meeting by Alex. McNeill, Chief of the Fruit Division of the Department of Agriculture at Ottawa; at the July meeting by Rev. A. H. Scott of Perth, vice president of the Ontario Horticultural Association, and by R. B. Whyte, president of that association. The August meeting was addressed by Mr. G. F. Marsh of the Ottawa Valley Journal, and the September meeting by R. B. Whyte, W. Graham of Graham Bros., seedsmen, and Mr. Buck of the Experimental Farm.—W. J. Kerr, Sec'y, Woodroffe, Ont.

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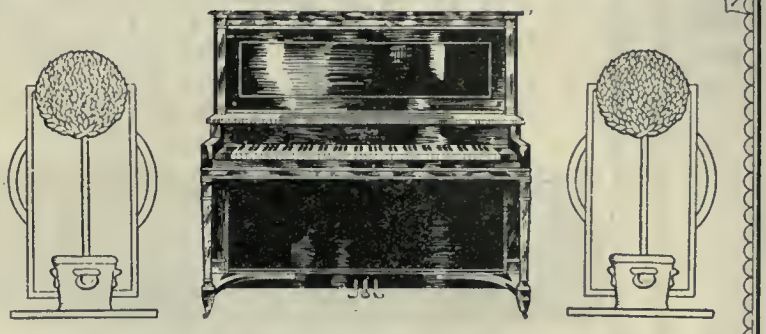

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PROVINCIAL NOTES

Eastern Annapolis Valley

Eunice Buchanan

The apple crop in most orchards far exceeded the early estimates of the growers and everywhere barrels are scarce. From twenty-five cents they gradually rose to forty cents and forty-five cents, and even then were hard to secure. Hundreds of barrels of apples are being emptied into bins to await the barrels. In the orchards dropped fruits are piled in heaps; the warehouses have not enough room, neither is there room in farm buildings, consequently the barrels are headed up and rolled on to planks under the trees. Barrel makers now charge eight cents for making.

By the beginning of October all the Gravensteins were shipped. From reports of the first boats they did not carry very well and one man received fifty cents each for one hundred and twenty barrels; others have had nine shillings for No. 2's and twelve shillings and sixpence for No. 1's. Ben Davis are being exported to Denmark; cider apples are going to Quebec. This year, owing to the excellence of the fruit, the sorting and grading is done rapidly. On the whole, good prices are expected.

The potato crop is short. One man planted twelve bushels of seed and dug eighty-seven bushels. The tubers are unusually large, there being very few small ones, and only a few big ones in a hill. The price began at fifty cents a bushel.

The evaporator at Berwick, which was burned, is now rebuilt and again at work. The vinegar factory has all its tanks full. Some orchardists finished picking the fruit by October eleventh, others a week later, but the scarcity of barrels has hindered the majority.

Montreal

E. H. Wartman, Dominion Fruit Inspector

We had a wonderful fall to the eighteenth day of October on account of freeness from frost. I could have picked a nice bouquet of tender flowers from my garden on that date not injured in the least by frost.

I am more and more impressed as years go by inspecting fruits that the proper condition of fruit packing is to be perfectly dry. Apples packed wet in barrels do not dry out for a long time, and when opened they have a dull color and in many cases a mouldy appearance. Barrels that get a drenching rain never look so well again and when piled in cars in that condition when unloaded many a head comes out which is re-coopered with the loss of apples, that makes a slack barrel. A six-hoop barrel especially will flatten on the bottom of the car and never regain its normal shape.

McIntosh & Fameuse apples coming to the city from the Province of Quebec are particularly fine, high colored and spotless. They command a high price, in some cases as high as $5 a barrel.

In the ten years of my stay here I never saw grapes bring so high an average price. New York State Keiffer pears are shipped by Montreal to Glasgow in barrels in car lots. Their condition is good and sound, but the fruit is ungraded. The barrel for pears seems to me a good way to give away a large parcel for little money. If properly handled in boxes they bring good money in Ireland.

I am glad to see some beautifully packed apples and pears going forward to Eng-

land that will surely bring good money back. There is not enough supervision here yet over the handling of box fruits. I think placards with the words, "Box Fruits," must be laid down carefully in every instance. These placards in French and English placed in steamship sheds would be a great benefit to the fruit trade.

British Columbia

Our provincial government has adopted a policy of placing power sprayers at various points in the province for demonstration purposes. One has been installed recently at Creston for the Kootenay district, and another has been ordered for Grand Forks. The government has two of these power sprayers in the Okanagan; two on the Lower Fraser; one at Salmon Arm, and one on Vancouver island. Three more are to be obtained in addition to the one ordered for Grand Forks. They will be placed in the Okanagan and on Vancouver islnad. The experts in charge of these machines will teach the growers what sprays to use and how and when they should be used. No charge will be made but the growers will be expected to supply the spraying material and a man to hold the spraying rods.

The government this year will continue the same policy as was followed last year in regard to the continuation of the packing schools. They have been productive of great benefit in many districts.

The Grand Trunk Pacific Railway have procured samples of apples grown in the Kitsumkalum Valley, ninety miles east of Prince Rupert. These apples are of different varieties, beautiful in their coloring, and tho flavor is said to be equal to the best brands grown in Ontario, and entirely unlike the inferior flavored fruit grown under irrigation in the more southerly regions and in practically all of the Pacific Coast states. The specimens came from the orchard of Mr. D. Stewart, who has about fifteen acres under cultivation. They represent the first grown on the operated line of the Grand Trunk Pacific. In the valleys of the Kitsumkalum, Lakelse and Copper rivers with other areas along the Skeena River, there should be approximately 300,000 acres of ideal fruit lands placed under cultivation in comparatively few years, and much of this land can be procured by pre-emption in 160-acre lots, the only charge being one dollar per acre, in addition to the residence requirements of the law. It is predicted that this territory will become the centre of a new and greater fruit district in British Columbia.

At Prince Rupert this summer strawberries grown along the Skeena River and in the valleys of the Kitsumkalum, Lakelse and Copper rivers came into market for the first time in considerable quantities, and tho fruit was reported to be superior in quality and extremely high colored.

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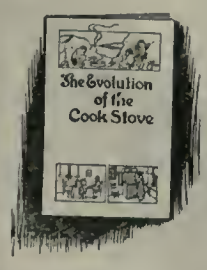

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apples, with the one proviso that they are free of disease.," said Fruit Pests Inspector Thomas Cunningham recently. "That they are I can guarantee," continued Mr. Cunningham, "and it will not be very long before this province will be able to meet the requirements of the great Australian markets, because the production is increasing very rapidly. Recently I signed certificates of inspection of twelve shipments of apples in the Okanagan which were consigned to Australia."

Nova Scotia

Mr. Ray, Canadian Trade Commissioner at Birmingham, England, writing on September 21, said that during that week a consignment of 200 barrels of apples from Nova Scotia, shipped two or three weeks before contracted time, had been declined on account of their inability to compete with the home product. The imports of applies during the month of August were valued approximately at $270,000, being $96,000 less than the corresponding month of 1910. Nova Scotia Gravensteins were then commanding, No. 1, $2.67 to $3.40; No. 2, $2 to $3.50 per barrel, respectively.

The total shipment of apples from Halifax up to October 16 for the present season has been 352,000 barrels, compared with 205,000 barrels for the entire season last year. During the present week there will be at least another 50,000 barrels shipped.

One of the finest and best packed consignments of apples that has ever been sent out of the province was shipped recently by the Hillcrest Orchards at Kentville. It comprised 218 boxes. Half-tone reproductions of scenes in the orchards were placed in each box for advertising purposes. Up to October 12th this company had harvested between 8,000 and 9,000 barrels, including about 2,000 barrels of Gravensteins, which is probably the largest crop harvested this year in Eastern Canada. On that date picking in the orchards was not completed.

Notes from Niagara District

Linns Woolverton, Grimsby

Autumn work is beginning earlier than usual. Many of our fruit growers have already begun plowing their fruit orchards, having finished their fruit harvest by the middle of October. The drouth in early summer hastened the ripening of all our fruits, so that even winter apples were ready by the end of Sptember.

Apples have graded number two and number three, instead of number one and number two. Had it not been for the hail storm the crop would have been chiefly number one, thanks to lime sulphur and arsenate of lead. The effect is noticeable in my orchard, trees bearing enormous loads on the sprayed half and no fruit to speak of on the other. I think the apple scab weakens the little stem of the blossom and causes it to fall, and when sprayed it becomes healthy and holds for fruiting.

I like having my whole orchard fall plowed for two reasons first, the improving effect of the frost on the exposed soil, and second, the advantage of having it done before beginning the pruning; otherwise one must clear up so much rubbish in early spring before beginning to plow, or to plant trees. Of course here we do not need winter protection for trees; and if we did, the mulch of plowed ground would be protection enough.

This whole district is being devoted to fruit. A trolley ride from Hamilton to Beamsville is an eye opener to strangers.

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1 Choice House Fern. Ostrich Plume.
1 Choice House Fern, Bostonensis.
1 Splendid Kentia Palm.
1 Large Asparagus Fern.
1 Xmas Cherry (in fruit).
1 Fine Cyclamen.

Cultural directions for these plants will be found in our Catalog, which we mail free with this order.

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Try an application of:

200-lbs. Muriate of Potash and 400-lbs. Acid Phosphate or finely ground Bone Meal

These materials are stocked by all leading Fertilizer Dealers and Seedsmen.

Visit our stand at the Ontario Horticultural Exhibition, 14th to 18th November, in St. Lawrence Market, Toronto, or write us for free advice and copies of our publications, including:

"Fertilizing Orchard and Garden,"
"Artificial Fertilizers, Their Nature and Use."
"A Farmer's Field Tests," etc., etc.

Dominion Agricultural Offices of the Potash Syndicate, 1102-1105 TEMPLE BUILDING **TORONTO, ONTARIO**

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Modern and Ancient

CHAPTER 5

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Books and Bulletins

During the past few weeks The Canadian Horticulturist has received a number of books and bulletins, a number of which are of more than ordinary interest and value. Three books from Doubleday Page and Co., Publishers, of Garden City, N.Y., include the following: "Vines and how to Grow them," by Wm. C. McCollum. This volume deals with all kinds of climbing and trailing plants for garden effect, including not only hardy annual and permanent woody vines but many of the beautiful exotics. It is well illustrated. "Garden Planning," by W. S. Rogers, is especially designed to help the maker of small gardens. The author writes from actual experience in helping amateurs on city lots and on the average suburban plot. There are many other sketches and plans "Chrysanthemums and how to Grow them," by I. L. Powell, is a complete manual of instruction on the growing of chrysanthemums. It pays special attention to the opportunity of the amateur who has only an outdoor garden. Several excellent illustrations add to the value of the volume. The foregoing books contain from two hundred to four hundred pages each, and may be purchased for $1.10, with postage 10c extra.

"Cooperation among fruit growers" is the title of bulletin No. 27, issued by the Agricultural Experiment Station, Columbia, Missouri. It gives the constitution, by-laws and rules of a number of the most successful cooperative associations on the Continent, and explains the reasons for their success.

The Ohio Agricultural Experiment Station at Wooster has issued bulletin No. 228, dealing with "Two recent important cabbage diseases of Ohio." One of these is the wilt or the yellows of cabbage and the other black-leg or foot rot. The bulletin is well illustrated and handles both subjects at length.

Commercial fertilizers are dealt with in bulletin No. 101, issued by Perdue University, Lafayette, Indiana. It gives the full text of the law governing the sale of fertilizers in Indiana, and tables showing the results of inspections of samples.

"Commercial Apple Orcharding in Ohio" is described in circular No. 112 of the Ohio Station at Wooster. The results of experiments in spraying are given.

The value of birds in the destruction of injurious insects is shown in Farmer's Bulletin No. 456, entitled "Our Grosbeaks and their Value to Agriculture," issued by the United States Department of Agriculture, Washington.

INJURIOUS INSECTS

One of the best bulletins of its class we have seen for some time is bulletin No. 110, issued by the Agricultural Experiment Station, Centre County, Pennsylvania, entitled "The Control of Insects and Diseases affecting Horticultural Crops." It gives concise descriptions of methods for controlling the principal insect enemies and fungous diseases of fruits and vegetables.

"How to combat the Melon Apis," is dealt with in press bulletin No. 34 of the Experiment Station, Lincoln, Neb.

"Cut Worms, Army Worms and Grasshoppers" are described in bulletin No. 123 of the Division of Entomology of the Experiment Station University Farm, St. Paul, Minnesota.

"The Apple Maggot or Railroad Worm" is the title of circular No. 14 of the Experiment Station, Durham, New Hampshire.

"Winter Vetch as a Cover Crop in Michigan Orchards" is dealt with in circular No. 13 of the Agricultural College, East Lansing, Mich.

Nomenclature Committee

(*Continued from page* 263)

was held in the tent of The Canadian Horticulturist at the Canadian National Exhibition in Toronto. Those present were Mr. R. B. Whyte of Ottawa, Prof. H. L. Hutt and Mr. Wm. Hunt of Guelph, Mr. H. B. Cowan of Peterboro, and the secretary Mr. John Cavers of Oakville. Methods of dealing with the difficulty that arises from the different pronunciations of such common words as vase, gladioli and dahlia were discussed. It was decided to request the public to offer suggestions in regard to the pronunciation of common words of this class, and the members of the committee were asked to submit a list not exceeding twenty-five names, the correct pronunciation of each name and to quote authorities for their opinions. These are to be submitted at the annual convention of the Canadian Horticultural Association in November.

Mr. Hunt agreed to submit a list of twelve good chrysanthemums and Mr. Whyte of twelve good begonias. It was decided to give any person who so desires, an opportunity to submit a list of twenty good varieties of sweet peas. The list should be sent to the secretary, and will be considered at the annual convention in November.

PRIZE ESSAYS

In the May issue of The Canadian Horticulturist we announced that through the generosity of Mr. Hermann Simmers, of the firm of J. A. Simmers, Limited, of Toronto, and of Mr. R. B. Whyte, of Ottawa, the president of the Ontario Horticultural Association, each of whom had donated twenty-five dollars for the purpose, four cash prizes and four medals would be given for the four best essays written by members of horticultural societies on the subject, "My Favorite Garden Flower and How I Grow It." The competition closed in August. The judge, Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, has announced the awards as follows:

First prize, A. V. Main, Ottawa, who chose the geranium; second prize, James M. Hull, Hamilton, whose subject was the rose; third prize, J. H. Wills, Mitchell, whose favorite flower is the sweet pea; and fourth prize, E. C. Kilmer, Brantford, whose essay was on the gladiolus. Two other competitors took part in the competition. One selected the lily and the other the violet. It was a somewhat remarkable feature of the contest that no two of the competitors selected the same flower. The prize-winning essays will be published later in The Canadian Horticulturist.

SMITH'S FALLS

Notices for the annual meeting of the Smith's Falls Horticultural Society have been distributed. It will be held in the Public Library Hall on November 2nd. The officers of the society are certainly up-to-date, inasmuch as in the notice of the meeting, which is in the form of a four-page circular, they announce the premiums members of the society will be free to select during 1912.

The notice contains thirty groups of different varieties of plants, ferns, palms, bulbs, bushes, and small fruits. The members of the society are notified that they will be free to select any four of these groups and, in addition, they will as usual be sent The Canadian Horticulturist free by the society for the year. The president is Mr. D. M. Cobourn and the secretary-treasurer Mr. W. M. Keith.

LONDON

The London Horticultural Society each fall offers three prizes for the best display of asters at the Western Fair, held at London in September. The display of asters this year was exceptionally fine. The flowers were almost all colors and bloom excellent. This year as usual the amateurs excelled the professionals in their exhibits of dahlias, pansies and all cut flowers, taking all the first and second prizes. This feature of the exhibition is much enjoyed by the public and generally brings out a large number of entries from a considerable number of exhibitors. The large number of amateurs who make exhibits adds greatly to the value of this feature of the exhibition and of the work of the society.

The sympathy of members of our society went out recently to Mr. R. W. Rennie, who was for many years the secretary of the society, over the death of his wife.

A Great Exhibit of Fruit

"We expect to open the eyes of the people of Ontario to the kind of fruit we can produce," writes Secretary P. W. Hodgetts in regard to the Ontario Horticultural Exhibition, which will be held in Toronto November 14-18. The fruit promises to be of unusual quality.

Already two thousand two hundred boxes of apples have been promised and a number of fruit growing districts are trying to secure space.

A row of boxed apples, seven high, will be run around the building from the entrance on the west side through to the further end and across the building. This could have been extended to take in the whole building, but to have done so would not have left space for the exhibits of spraying machinery and other supplies which are of great value. Exhibitors, including those in charge of county displays,

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Please find enclosed postal notes for $15.00, the amount of my account. I have found International Stock Food excellent for my horses and cattle, and pigs. It has given me every satisfaction, and I would not be without it. As soon as my present supply is finished I shall send a further order.
(Signed) J. V. SMITH.
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Tree Protected by Wooden Veneer and banked up with earth to prevent entrance of pests at bottom.

PROTECT YOUR TREES

Against Rabbits, Mice and other Vermin

Many young orchards are greatly injured each year by these pests. Wrap the trunks with

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and damage will be prevented. These veneers will protect also against sun-scald.

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FOR SALE, 10,000 CEDAR POSTS—Running from 2½ inches to 4½ inches top, 8 ft. long, suitable for grape growers. We want to move these at once to make room for other stock. Will make the price right for quick sales.—The John Carew Lumber Co., Ltd., Lindsay, Ont.

FARMS FOR SALE

NIAGARA DISTRICT FRUIT FARMS.—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman St. Catharines.

FINE NIAGARA COUNTY, NEW YORK, FRUIT FARM TO LET—Exceptional opportunity for reliable, experienced, hustling fruit farmer.—Farm, care of Canadian Horticulturist.

FARM FOR SALE—Consists of 200 acres in good state of cultivation, well fenced and watered, only one mile north of town of Cobourg. Eight acres of orchard and eight of good hardwood. Some excellent pasture. Two sets of farm buildings in good repair. For particulars apply to C. N. Hare. Cobourg, Ont.

LOCATE IN THE FAMOUS NIAGARA DISTRICT for Dependable, Annual crops of High Class Fruits and Profit-making. I have all sizes Choice Fruit Farms for sale; the Very Best of PEACH LANDS. Learn about them before making a purchase. State what you want. Information free.—W. H. Brand, Jordan Station, Ont., Can.

100 ACRES ADJOINING LIVE TOWN with Collegiate Institute, good shipping facilities, sixty-five acres apple orchard in splendid condition; soil well adapted to fruit growing; large house with furnace, bath and electric light, two good barns. Would subdivide into two parts if desired. Price, twenty thousand.—F. J. Watson, 1275 Queen W., Toronto.

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SALMON ARM, Shuswap Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary mild winters, moderate summers, no blizzards, or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has ralized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

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Peaches, pears, plums, berries and pecan nuts yield prolifically. Excellent transportation to profitable markets.

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have been notified that the space available is limited.

The other exhibits will all be away ahead of anything previously shown. The demonstration orchards of the Department of Agriculture will have over four hundred boxes in their display from the Georgian Bay, Dundas, Hastings, Northumberland, Durham, Prince Edward and Wentworth counties. The counties of Norfolk, Brant, Elgin, Prince Edward, Northumberland and Durham, Ontario, Lincoln and Simcoe will have exhibits outside of those from the demonstration orchards.

Fruit Growers' Convention

The program for the annual convention of the Ontario Fruit Growers' Association had not reached us at the time of going to press, and we are therefore unable to give the date of the convention which will be held in Toronto during the week of the Ontario Horticultural Exhibition, November 14 to 18. Programs may be obtained from the secretary, P. W. Hodgetts, Toronto. Mr. Hodgetts writes us that arrangements have been made for a special session devoted to peaches with particular attention being paid to peach diseases. The speakers will include a couple of experts from across the line, who have been fighting the Little Peach particularly in recent years.

Another session will be devoted to profits in orcharding with particular reference to apples. Mr. W. F. Kydd of Simcoe will speak on the neglected orchards of Ontario, while Prof. J. W. Crow of Guelph will take up the results of the orchard surveys which show very distinctly the profits that can be made and the methods that are being adopted by the most up-to-date growers to secure these profits.

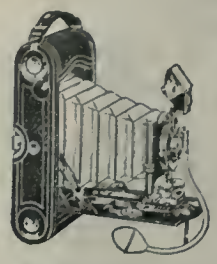
Another session will be set aside to discuss matter that are likely to be taken up at the Dominion Fruit Conference to be held next winter.

Vegetable Growers' Convention

The seventh annual convention of the Ontario Vegetable Growers' Association will be held in the City Hall, Toronto, on Wednesday, November fifteenth. The program is an interesting one. The morning session will open at nine o'clock with the address of the president, Thomas Delworth of Weston. It will be followed by the report of the secretary treasurer, J. Lockie Wilson, Toronto. Among the subjects that will be discussed will be that of "Organization," by C. W. Baker of Tamblings, Ont.; "Tomato Growing for the Market," by Geo. Cooper, Grimsby, Ont., and "Good Seed for Vegetable Growers," by L. C. Corbett of the Department of Agriculture, Washington, D. C.

The subjects for discussion at the afternoon session include "New Methods in Small Fruit Culture," by W. J. Kerr, Ottawa; "What the Central Experimental Farm, the Ontario Agricultural College and the Jordan Harbor Experimental Station are Doing for Vegetable Growers," by W. T. Macoun, Ottawa, A. H. MacLennan of Guelph and A. I. Logsdail of Jordan Harbor; "New Ontario for the Production of Seed Potatoes," by T. G. Raynor, Department of Agriculture, Ottawa, and an address by Dr. W. W. Tracey, Department of Agriculture, Washington, D. C.

The main address at the evening session will be on "Marketing Problems," by Paul Work of Cornell University, Ithaca, N. Y. Addresses will be given also by Mr. C. C. James, Deputy Minister of Agriculture, Toronto, and by Hon. J. S. Duff, the provincial Minister of Agriculture. There will be single fare rates to the convention from all points in Ontario.



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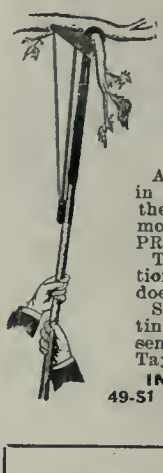

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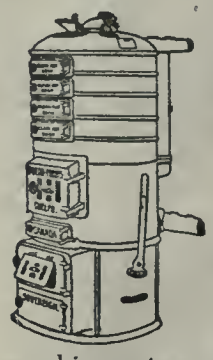

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The Canadian Horticulturist

Vol. XXXIV DECEMBER, 1911 No. 12

Care of the Peach Orchard*

F. M. Clement, Dutton, Ont.

IT is generally considered in Ontario that peaches can be grown only in the Niagara peninsula, in a limited section in Lambton county, and in the Leamington district, but this is not so. Norfolk county is fast showing the public that it is entitled to a place, and along the shore and on a number of the gravel ridges through Elgin and Essex counties are to be found to-day some excellent orchards. I believe, too, that in the very near future these counties, that is Norfolk, Elgin and Kent, will be competitors with the counties in which the industry is already established. In these sections they have no injured reputations to overcome. I do not mean that in the established sections they have a poor reputation, but they have sometimes sent out fruit that is not up to the standard. This year there came to my notice a shipment of fruit from the Niagara peninsula, that had been sold on order, which on being opened caused the dealer to remark: "I do not want any more fruit from there;" and the next orders went to the west, where there had been no hailstorm, instead of to the east.

SELECT GOOD VARIETIES

The first essential in the orchard is to have good varieties; it is very difficult to give a list that is suited to all sections of the province. It is much better to go to some neighbor, who is making a success of the business, and see what he is doing. The varieties that are doing best for him will probably do best for you.

We find growing to-day in large numbers such varieties as Longhurst, Sneed, Rivers and Alexander. While I do not say that these varieties should not be grown, still they should have no large place in the commercial market. There are many other varieties that have no place there also. In every orchard that I visited in the Niagara peninsula two varieties at least are grown, and I did not visit a single orchard in which both varieties were not to be found. These two are Yellow St. John and Elberta. The Smock stands, perhaps, as next choice.

It is surprising how little a great many prospective growers know of peach culture. There came under my notice this summer an orchard of about four acres, now three years of age, in which the owner had grown his own trees from pits selected in the neighborhood from trees that were producing fruit of fairly good quality. He expected to get varieties true to name. When asked why he did not bud them he stated that the trees purchased from the nursery usually seemed to contract a disease at the junction of the bud and the root stock. The disease was really the bore working where he stated because he had not planted the trees sufficiently deep.

SOIL REQUIRED

The kind of soil on which the trees are planted is not so important as the drainage of that soil. There are a large number of orchards doing exceptionally well on a very heavy clay, and some are doing equally well on a light sand, but in every case where they are doing well on the clay it is well underdrained. On a soil, with an impervious subsoil, the roots cannot take their natural course and spread out deep down in the soil. I dug up a number of dead trees on a soil of this nature last summer, and in every case the roots spread out horizontally and were very near the surface. They had not in any case entered the cold wet subsoil.

In a soil to which the trees are adapted naturally the roots go down very deep much the same as the pine or chestnut; in a soil to which they are not adapted it is often necessary to bank them up considerably to get enough soil

*Extract from a paper read at the annual convention of the Ontario Fruit Growers' Association, held in Toronto in November.

An Idea of the Extent of the Exhibits at the Ontario Horticultural Exhibition, held in Toronto last month may be obtained from this illustration

to cover the roots. This latter method is very noticeable in some orchards where they believe that by leaving the trees on the ridge on the land they can get sufficient soil and sufficient drainage to make them thrive.

Some practical instances of lack of knowledge in pruning are also seen through the country. In some orchards the trees have been planted just as they came from the nursery without being headed back or shortened, and to-day they stand as monuments of some one's folly with trunks from four to six feet in length and with branches coming out all along it. Another instance that came under my observation is that of quite a large orchard in which the nurserymen had instructed the grower to cut back all to fourteen inches, and the grower had obeyed him implicitly without the slightest consideration for the size of the tree or bud growth on it. The question of cutting back young stock and heading in severely at one, two and three years will admit of a great deal of discussion.

In sections like Kent and Elgin and parts of Lambton, heading back too severely does not do, as the growth is too tender to stand the severer winter. In these sections very little cutting back should be practised. In the Niagara peninsula we have the two extremes, that in which the grower does not thin out or cut back his tree until three years of age and that in which the tree is systematically pruned summer and winter to produce a head according to the grower's idea. There is more danger from freezing when the tree is cut back than when it is not, and it requires much more skilful orchard practice to bring a severely pruned orchard through a severe winter. Many claim that on an average more fruit is produced on the unpruned tree at three years of age than on the pruned tree. I am not prepared to say which is better, but I do say that if you are cutting back in any section, except the Niagara peninsula, cease cultivation in early July and sow a cover crop to harden and prepare the fruit buds for winter.

Our best growers differ a great deal in their opinions as to what is the best method of cultivation. A large number plow twice in the year, some plow only in the fall, some only in the spring, and some do not plow at all, and a large number have no regular system. In the eastern townships of the Niagara peninsula to twenty who plow both spring and fall, fifteen plow in the spring only, and seven in the fall only, and three do not plow at all, and seven plow when they are ready, not when the trees are. Those figures are given relatively. I believe though that the tendency is to plow less and that the use of extension orchard implements is gaining ground. Three or four of our best growers do not plow their bearing orchards. They use the extension disc and the spring tooth harrow.

The Railroad Worm or Apple Maggot*

W. A. Ross, Bowmanville, Ont.

THE Railroad Worm or Apple Maggot is not, as many suppose, a new pest in Ontario. Its occurrence in Lennox county in eighteen hundred and ninety-five was recorded by the late Dr. Fletcher in the Central Farm Report for eighteen hundred and ninety-six. Since then it has extended its range considerably and has gained in notoriety every year. I have now records of it having been found in the following counties: Prince Edward, Lennox, Hastings, Frontenac, Northumberland, Durham, Ontario, Wentworth, Lincoln, Welland, and Norfolk.

Fruitgrowers from the eastern counties are all more or less familiar with the work of this destructive pest—it is responsible for what is commonly called "railroaded" or "woody" apples. The flesh of such fruit is characterized by the presence of winding, brownish streaks, which are the burrows or tracks of Railroad Worms or tiny maggots, who lead a parasitic life within the fruit. These maggots or worms are the larvæ of a two-winged fly, whose handsome exterior somewhat belies its evil character. It is somewhat smaller than the house or typhoid fly, is of a general black color, with yellowish head and legs, prominent greenish eyes and barred, pictured wings (each wing is crossed by four dark bars). In the female there are four, in the male three, white bands across the abdomen.

*A paper read at the annual convention of the Ontario Fruit Growers' Association, held in Toronto, November, 1911.

LIFE HISTORY

The insect passes the winter as a pupa in the soil. The pupa somewhat resembles a kernel of wheat. In eastern Ontario adult flies first begin to put in an appearance during the second and third weeks of July, and they continue to emerge from the soil over a period of four or five weeks. The female, by means of a sharp instrument, an ovipositor, punctures the skin of the apple and makes a minute, cylindrical passage in the flesh, into which the egg is laid. The egg puncture appears at first as a minute brown speck, but later it becomes the centre of a small depression. The egg hatches in about six days' time, and the young maggot, which at this stage is not visible to the naked eye, then proceeds to burrow here and there

A View of the Plate and Boxed Fruit Exhibits at the Recent New Brunswick Horticultural Exhibition. Notice the Splendid Display of Boxed Fruit.

through the flesh of the apple. It may wander near the skin and work just beneath the cuticle, giving rise to those external grooves so commonly seen on infested Spy apples. It is very interesting to know that the rate of growth of the larva keeps pace with the maturing of the fruit. When the maggot is full grown, the apple is almost invariably in an over-ripe to a rotten condition, and is usually, of course, on the ground. The full grown larva leaves its apple abode and works its way into the soil to a depth ranging from one-half to two inches, and pupates there. A few larvæ may go deeper than this and others may pupate immediately beneath the decaying fruit. The insect then remains at this stage in the soil over winter, and emerges as a fly the following summer.

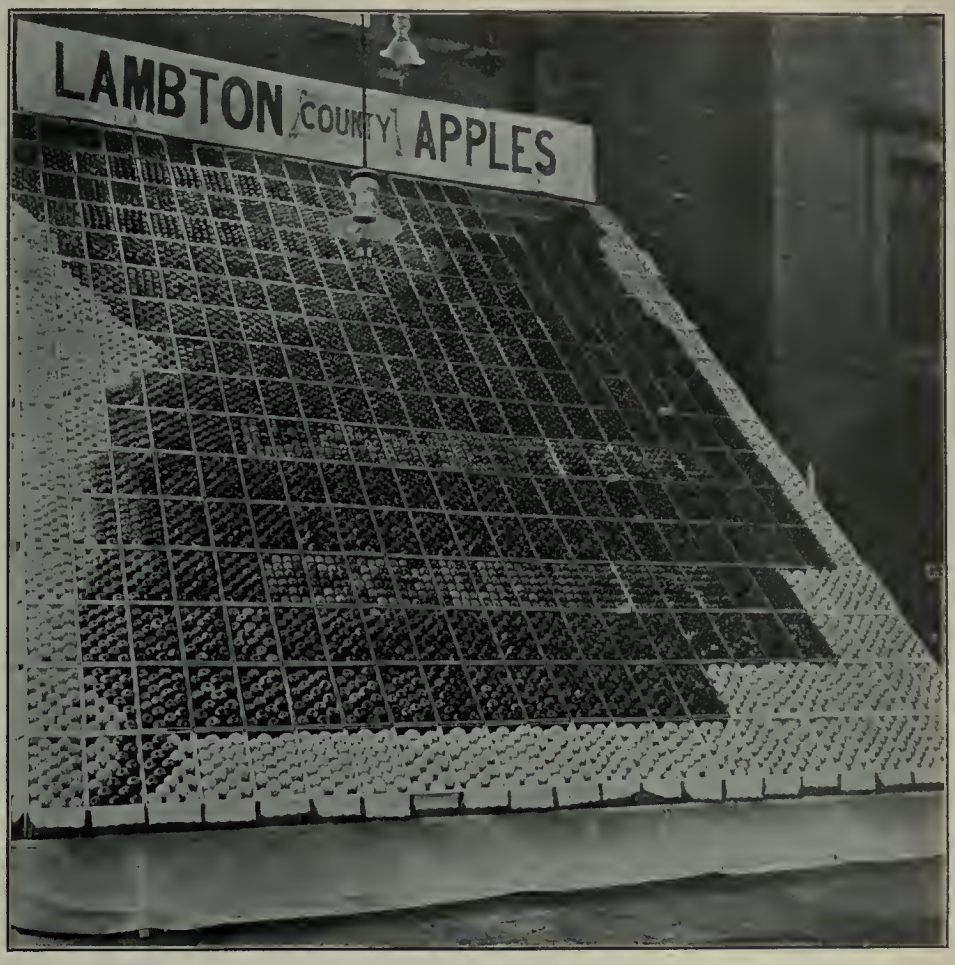
SPREAD

The sluggish nature and stay-at-home tendencies of the fly make it a very poor immigrant—it spreads very slowly on its own initiative. It may confine its attack to a single tree in an orchard for a few years before spreading to the neighboring trees. As to how the insect has extended its range in Ontario, I can only offer theories. A considerable amount of Apple Maggot infested fruit is barrelled and shipped every year. Maggots emerging from such fruit naturally pupate in the barrels and so most probably the pest has been disseminated to a very large extent as pupæ in barrels.

Housewives may be held responsible for the introduction of the Railroad Worm in some orchards in the following way: Infested apples are bought at the market, taken home, many of them on account of their "woody" nature prove to be worthless and are thrown into the back yard and there they become a source of infection to the trees in the neighborhood. Strong winds may be instrumental in the spread of this pest, but I can only base this belief on purely circumstantial evidence, which I have not time to give now.

METHODS OF CONTROL

The most reliable remedial measure is the gathering and destroying of the fallen fruit. This does not mean that drops have to be picked up every day. If the summer apples are picked up twice every week, the fall apples every week, and the later varieties once every two or three weeks an infested orchard will be freed from this pest. I have found that a very high percentage of the larvæ in early apples mature and leave the fruit, and also that an exceedingly high percentage of them in the winter varieties perish in the fruit, so my advice to all who are troubled with this pest is to attend very carefully to the destruction of summer and fall "drops." In the eastern counties this work need not be commenced until about the second last week of July.



Lambton's Great Exhibit at the Ontario Horticultural Exhibition

The fruit growers of Lambton County, Ontario, proved their claim that Lambton is one of the best fruit growing counties in the province by the display of fruit they made last month at the Horticultural Exhibition in Toronto. The fruit, which was of excellent quality, was arranged to show the map of the county. The exhibit attracted general attention, and was highly praised by all who saw it. It contained 350 boxes of fruit.

This control work can, of course, be done by keeping hogs, sheep or other stock in the orchard, but now, when evaporators are paying as much as forty to sixty cents per hundred for "drops," even fallen apples are too valuable to be given to stock—pick them up and take them to the evaporator. In this connection I might say that I believe that the owners of evaporators are unconsciously doing a magnificent work in the control of this pest. Fruit growers are finding that the trade in "drops" and "culls" is sufficiently remunerative to more than pay for the time and labor expended in picking up apples. The result is that thousands of infested apples, which otherwise would have propagated and spread the trouble are being destroyed every year. I have on different occasions gone into evaporators in Durham and Hastings counties and have found "railroad" apples.

USE OF POULTRY

Chickens are remarkably fond of Railroad Worm pupæ. In the case of a small infested orchard, it would be an excellent plan to cultivate the orchard and convert it into a poultry run.

Shallow cultivation has often been recommended as a remedial measure. It was given a trial this year, but did not yield very satisfactory results. However, I shall give it another trial before I lose faith in it altogether.

SPRAYING

A certain investigator in the United States puts forward the claim that he has had splendid success in controlling this pest with a sweetened poisonous spray mixture; however, I do not want to advocate spraying until it has been thoroughly tested. The department hopes to try several spray mixtures next year, and its success or failure in this connection will be found in the Railroad Worm Bulletin which Mr. Caesar hopes to publish next season.

In regard to the varieties attacked and their degree of infestation, I would say that Harvests, Tolman Sweet, September, Snows and Spies are probably the worst attacked in Ontario. I have listed over thirty varieties which I have found pest-ridden, and I am inclined to think that no variety is exempt from attack. Any insect that would feed on Ben Davis, as this one does, is liable to

than sub-acid and sweet apples.

In my season's work I noticed that all the infested orchards with which I came in contact were in that class known as the "Neglected." This has also been Mr. Caesar's experience, so we are almost forced to the conclusion that in some way not clear to us, good orchard practice keeps the "Railroad Worm" out of the orchard.

Growing Nursery Stock*

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

In cutting back the trees that have made one years' growth, we cut back the following spring almost to the ground, and in that way we get the second year a very strong, healthy growth, which usually matures well before the winter. At Ottawa we get the most satisfactory results from root grafting our trees on crab apple stock. This is because in the cold parts of the country, as well as in New Brunswick, Quebec, and Eastern Ontario, we find that apple trees will not succeed on as cold soils as they will in the south of Ontario or the Annapolis Valley, hence it is most important, if we cannot have the soil as well drained as we desire, to have roots which will withstand such as nearly as possible. Crab apple trees will succeed in cold soils much better than apple trees; you will find them growing in wet land where apples would not stand. We believe for our conditions it is well to have our apple trees grafted or budded on these hardy roots, as being able to withstand the colder condition of the soil the tree will do better. After twelve years experience, I am more and more confirmed in this opinion.

SOW IN THE FALL

We sow the seed of the Martha, Whitney or Hyslop in the fall, and make nursery beds; the first thing in the spring these seeds will germinate and almost every seed will come up. We leave the seedlings in the beds for that winter; the following spring we set them out in the nursery, putting the trees six inches apart in rows three feet apart. You can either leave these trees for budding or use them for root grafting. We prefer root grafting, for the reason if the farmer is going to have a small nursery it is much easier to graft in the winter than in the summer, when one is usually very busy. The second year we dig up these young trees and heel them in in the cellar, and during the months of February and March we root graft on these stocks.

We allow the stock to grow two years before we graft, and sometimes put them in hotbeds and force them to be seedlings. About the first of June, after danger from frost is over, they are transplanted to nursery rows. In that way you can get very fine trees, large enough the first year.

In the spring, cut back one-third of the top of a three year old tree. The first buds to start in the spring are the top buds, and if you cut back too severely you will delay the budding some time and the tree will make about one-half its growth in the year, and sometimes just leaf out. It a severe winter follows it is almost sure to die. During the last few years with trees from our nursery I prefer to leave almost the whole top on, but I take out the unnecessary wood. You should cut back to the bud which is on the outside of the branch so that your branches will not run inside the tree. In getting trees from a distant nursery, or where you do not know how long they have been out of the ground, I think it is necessary to head back the trees quite severely when planting so as not to exhaust the moisture. You had better head back nursery stock about one-half of the growth all over the tree. Leave all the roots on, except broken or damaged ones. Do not put old manure in the hole, as you are liable to burn the roots. The best land on which to grow your nursery stock is a rich, well drained, sandy loam, a soil with possibly a gravel subsoil. Use soil which will not encourage a late growth of the tree.

*Concluded from November issue.

Ontario vs. British Columbia

There seems to be a great deal of advertising done, promoting fruit growing and fruit lands in British Columbia. They quote fruit lands at from three hundred dollars to three hundred and fifty dollars an acre. At what age do trees come into bearing on this irrigated land? Is the quality of the apple ahead of the central Ontario grown fruit and the production per acre any greater? I have about seventy-five acres of young orchard in Northumberland county, and a friend of mine is thinking about purchasing some orchard land in the Okanagan Valley. I have been persuading him to set out an orchard here, in Ontario, where land can be purchased for seventy-five dollars an acre. Please let me know how the two propositions compare.—W. W. F., -Northumberland Co., Ont.

As regards the possibilities in apple culture in British Columbia as compared to Ontario, we will discuss the question only from a financial standpoint and as a business proposition. Ontario possesses many advantages as an apple producing section all of which are possessed to a greater or less extent by British Columbia. British Columbia is at present importing far more apples than she is exporting, the figures for last year being twenty-eight thousand one hundred and three barrels imported, and one thousand nine hundred and twenty-three barrels exported. Consequently, prices are much higher in British Columbia than they are in Ontario. This may be changed considerably when British Columbia begins to export large quantities of apples, as she will in a few years' time. The price may then drop to meet the lower prices prevailing in Oregon and Washington States.

British Columbia claims an advantage in the superiority of the color and size of her apples, while Ontario claims a superiority in quality. This may be true and the apples may differ considerably in the two provinces, but the apples of either province, when well grown, can compete successfully on any market of the world against the apples of any other country. There need be no fear of the apples of either province begging for a buyer.

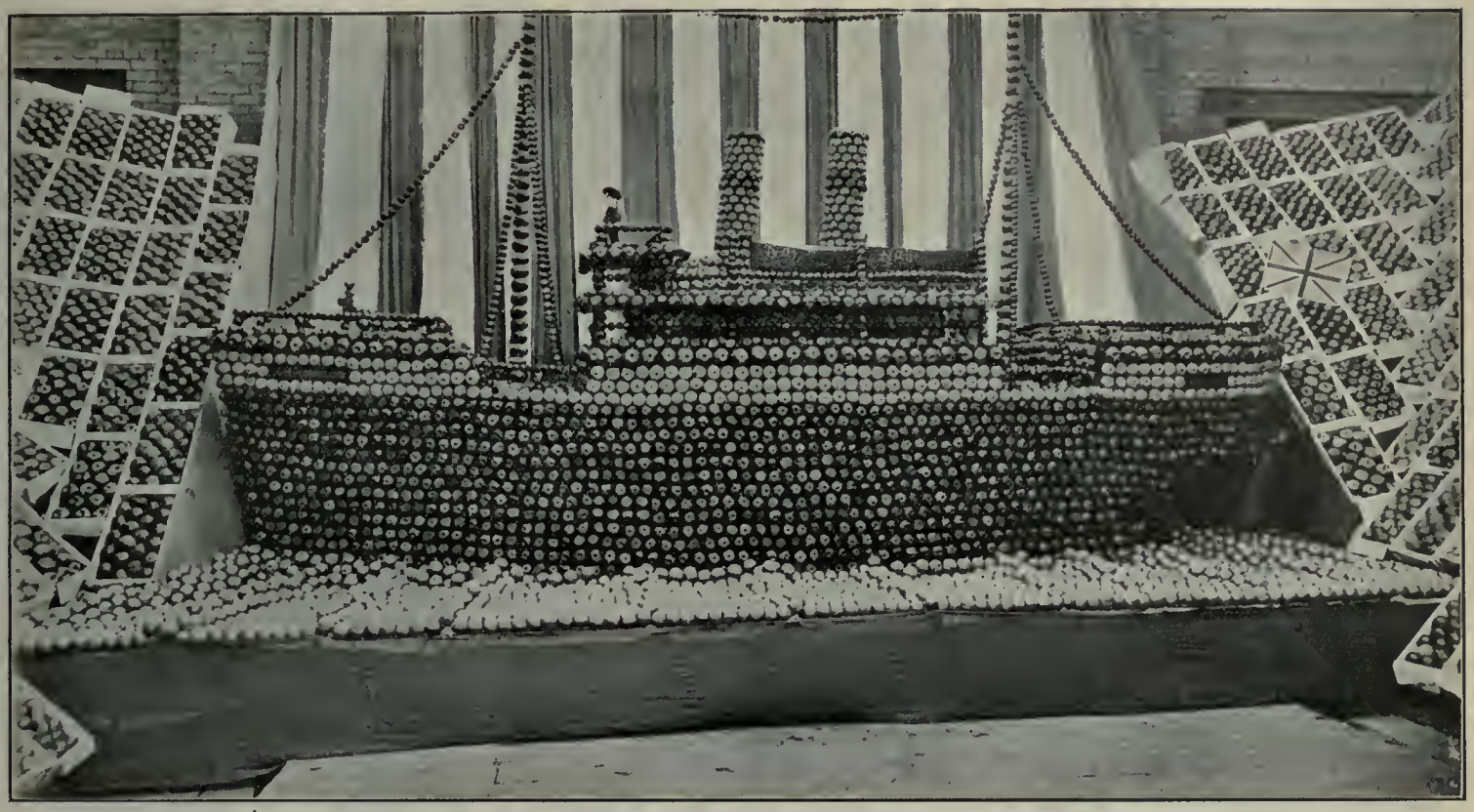
COST OF LAND

As our correspondent states, lands are quoted as high as three hundred dollars to three hundred and fifty dollars an acre in British Columbia, while good lands suitable for apple growing in Ontario can be purchased around seventy-five dollars an acre. This should be the deciding factor in locating an orchard. The mere cost of the land at three hundred dollars per acre in British Columbia will buy the land, pay for the trees, and bring an orchard into bearing in Ontario. One must consider that cost of living, labor, material, and supplies are higher in British Columbia than they are in Ontario, consequently the returns should be proportionately high.

In British Columbia young apple trees come into bearing at a very early age. It is supposed that they require a longer period in Ontario. This is largely due to the lack of method in Ontario in the past rather than to climatic or other disadvantage which she may possess. The writer has seen four-year-old apple trees in Ontario producing a heavy crop of fruit under the proper methods of culture and general care. Of course, all varieties will not produce at this age, neither will they do so in British Columbia. The best orchards in Ontario will warrant the statement that trees will produce as regularly, as heavily, and almost as early as they do in British Columbia. But we must remember that a variety suitable for British Columbia may not prove suitable for Ontario, and care should be taken to choose varieties that have proved satisfactory in the section in which it is intended to plant.

THE CONCLUSION

If our correspondent makes a good selection of apples, using early bearing varieties as fillers for the later bearing, larger growing varieties planted as standards, and buys land in a good apple section in Ontario, he should never regret it. Let him adopt good methods of culture, fertilizing, pruning, and spraying, as many growers in Ontario are doing, and he has a safe and sound investment. True there may be many difficulties in either province to overcome, but the progressive growers of both provinces have demonstrated that all difficulties may be successfully overcome.—G.B.



A Ship of Apples that was Highly Praised at the Recent Ontario Horticultural Exhibition

One of the features at the recent Ontario Horticultural Exhibition held in Toronto was the ship of apples and a display of boxed fruit, only a small part of which is here shown, that was made by the united counties of Northumberland and Durham. Notice how apples are arranged in the foreground to represent waves. Exhibits of this nature tend to greatly increase the value of the fruit lands in the counties that are enterprising enough to make them. This ship was about twenty feet long. Fifteen barrels of apples were required for this exhibit. About six hundred boxes of apples were shown on each side.

Garden Grown Decorations

Mrs. Annie L. Jack, Chateauguay Basin, Que.

A holiday appearance is given to a dining and living room in winter if the decorations for that season are leaf and fruit that have the association of being grown in garden or woodland. The "American Holly," as the "Mahonia Aquifolia," is often called, is a member of the Barberry family, but its shining green leaves have the same prickly points and appearance as the English holly so prized at that season by tradition.

The mahonia is a handsome summer shrub if well established. The flowers are yellow, resembling the barberry, but there the likeness ends, for the fruit is a blue berry the size of a large pea, and for this reason the plant is sometimes called "Oregon grape." Sprays laid against a wall are effective, mingled here and there with red barberries or "Physalis Francheti," called "Chinese lantern" plant. This is an easily grown perennial that was taken to England from Japan by James Veitch, and cultivated by M. Franchet in the Jardin des Plantes.

The fruits somewhat resemble a husk tomato and are a brilliant orange red. They will last for years as a decoration if put away carefully from the light, and look well mingled with sprays of hemlock or pine.

The flower is rather insignificant and the plant of straggling growth, but well worth cultivating for its fruits, for color is needed among the greenery, and the real always prove more attractive than the artificial. The "Lanterns" turn red in September and can be picked with long stems, and dried in a warm airy place, ready for use. On a bracket, under a picture or in the centre of a mantel a poinsettia can be placed, its terminal bracts of fiery scarlet leaves being very effective.

It can be grown during the summer in the garden in pots sunk in the ground, but does not endure frost, being a native of Mexico, in fact it was named after Joel R. Poinsette, the American minister to that country, who first discovered it.

Fortunate are they who have been forehanded enough to gather in the woods some ground pine and hemlock, for it makes decoration easy. The crimson and yellow and variously tinted leaves of the maples are utilized by one decorator, who presses and varnishes them, and forms them into some simple design.

A pretty decorative plant is "Ardisia crenulata," with its glossy green leaves and vermilion berries that are so accommodating as to remain all winter on the plant.

By preparing through the summer these decorative plants can be made to do their share towards bringing the garden to the living room and so, "Make things pleasant in one little place."

The Care of Tulips

Wm. Hunt, O.A.C., Guelph, Ont.

Can you use the same tulip bulbs for several years? Is it best to raise them every spring? Can you have the ground too rich? —M. L. P., Mono Mills, Ont.

Tulip bulbs can be used for successive years if treated properly. It is not necary to lift or disturb the bulbs for several years unless the ground has to be dug and cultivated, to plant in other kinds of plants for summer decoration. Where tulip beds are planted in a mixed or perennial flower border or among shrubs, it is not advisable to disturb them until the bulbs have become too crowded. This condition is shown when the bulbs begin to produce an inferior type of flower.

About once in every six or seven years is often enough to lift and divide tulips when planted permanently among other plants or flowers such as I have mentioned. I have known tulips and narcissi to flower every year for twenty-five years without being disturbed. The best time to lift, divide and transplant these is towards the end of July or early in August before the bulbs start to take root. Bulbs should never be disturbed after they have started to root and grow, until after the flowering period.

It is possible to have the soil too rich in fertilizers for bulbs. It is best to fertilize the ground when digging it for the summer decorative plants in June as before suggested. If the ground is of good garden soil quality, no more manure should be required for the bulbs. If manure is used at the time of planting bulbs, it should be well rotted, almost the nature of soil itself, and be dug in deeply so as not to come in direct contact with the bulbs. If the soil is of a heavy clay nature it should be lightened by digging in some sand as well as the fertilizer. A rather light loamy soil suits tulips best.

Practical Plant Breeding

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

(Concluded from the November issue)

The Chinese Primrose, Primula sinensis, affords another striking illustration. The flowers of the species as originally introduced were insignificant and of poor color. Now we have flowers ranging from white to deep crimson, including

Figure 3

a beautiful blue, while the foliage is so attractive, as to render the plant ornamental even when not in flower. This process of development has been slow, but the results of careful hybridizing and selection are sure, and who can say that the result is not worthy of the labor as he looks into the face of any one of these beautiful flowers? Surely such results as indicated in Figure 3 are encouraging.

Horticulturists generally are aware that a great number of the beautiful greenhouse flowering plants have been introduced from the older countries. Some of these have been satisfactory, while others have proved decidedly the reverse. In many places it is almost impossible to grow the herbaceous Calceolaria, which is so highly prized as a decorative flowering plant. This is due to the excessive heat, which checks growth during the late summer and fall months when the plant as a seedling should be growing strong and vigorous.

Figure 4 is a photograph of a plant belonging to the genus and 4a the hybrid with both parents. The parent plants were crossed with the object of producing a more hardy heat resisting variety. The female parent is C rugosa and the male parent a variety of the herbaceous greenhouse type.

C rugosa was chosen on account of its hardy nature. The hybrid has inherited that character, and has proved a valuable ornamental plant as is shown by the photograph.

Selective work also has been carried on to some extent with the genus Calceolaria. Through eight generations seeds have been selected from the plant with the most desirable habit, and the largest flowers. The result is shown in Figure 5, which represents a specimen of the herbaceous type. The plant was grown in a 7-inch pot, and measured three feet in diameter.

The genus Begonia also affords opportunity for experimental work. Figure 6 illustrates the results of crossing the ordinary tuberus bedding variety with the species Dregei (The hybrid is in the centre), while Figure 7 illustrates a batch of the seedlings of the first generation. The cross was made in the hope of producing an improved bedding variety, but as the seedlings cannot be planted out during the present year, it will be impossible to say whether the object has been attained until next season. In any case the hybrid is a most satisfactory greenhouse plant.

Space will not permit of further illustration, but it will be obvious to anyone

Figure 4

with a knowledge of plants that what can be done with one natural order or even genus can nearly always be done with another, and there can be no greater reward than the realization of having created with the help of nature something different than already existed.

In the above experiments many of the hybrids have followed Mendel's Law of Heredity. Of this Law there is no time to speak here except to say that this great discovery has taught us not to discard hybrid plants as worthless. They may have inherited some desirable quality which in succeeding generations will appear and amply repay months and even years of assiduous toil.

What is true of flowers is true also of vegetables. Strange as it may seem, a

Figure 4 A

good edible variety of carrot has been produced by selection through seven generations from the common wild species Daucus carota. The parsnip has a similar history, and that delicious vegetable asparagus has been produced by judicious selection combined with careful cultivation from the wild, saline loving seaside plant Asparagus officinalis.

There is not only an unlimited field for the scientific investigator, whether he be studying to throw light upon some cytological problem, or to substantiate some existing theory, but there are also unlimited possibilities for the practical plant breeder. Science and practice are inseparably wedded, therefore it is the duty of one to aid the other for the sake of the good which can only accrue from mutual cooperation. Scientists have obtained many ideas and much of their knowledge from the trained practitioner, and it is to him they look for material for scientific investigation.

Let us then not scorn the efforts of the men who do the work; rather let us encourage the improvement of our beautiful flowers and useful fruits and vegetables. The difference between the scientist and the practitioner is only that of degree, and in either case let us en-

Figure 5

courage the one whose efforts testify to an intelligent appreciation of the works of nature.

Amaryllis

Thos. Jackson, Agricultural College, Winnipeg

These are beautiful bulbous plants from the Cape of Good Hope. They grow remarkably well as a house plant, producing under the simplest conditions one, two or even three spikes from eighteen to twenty-four inches in height, with from three to six large trumpet-shaped blooms, which last a long time in good condition. They can be secured from any good nursery or seed house during the winter or early spring.

As soon as the bulbs are received, they should be planted in pots an inch or so larger than the diameter of the bulbs. Plant them so that the widest part of the bulb is covered with soil and the top part or neck left exposed. For soil, use two parts of good fibrous loam, one part of well rotted manure or leaf mould a little sand, and a sprinkling of flour well mixed together.

After potting put them right in the window, and water sparingly at first, and if they are well matured bulbs it will not be long before the flower scapes appear, and after that the leaves.

It will then be necessary to water more freely as the plant develops. When in bloom a medium temperature with a light shade will prolong the flowering period.

Why don't they keep the streets a little cleaner?
You ask with deep annoyance not undue.
Why don't they keep the parks a little greener?
(Did you ever stop to think that they means you?)

Sweet Peas and Their Culture*

Thomas D. Dockray, Toronto, Ont.

For the decoration of the home and the garden no flower is more popular than the sweet pea. More seed of it is sold than of any other flower and to create a new variety is the dream of every hybridist.

To produce the largest and earliest blooms, sweet peas should be grown in full sunlight. If the slanting shadow of a tall tree or building should happen to fall upon them for an hour or so in the afternoon it will help to prevent them from burning in the sun, but more shade than this will make them weak and ineffective. Heavy clay soil is said to be the best for them, but in Toronto we have had fair success on clay loam and even on sandy soil.

Prepare the ground in the fall by digging the earth out of the place where the sweet peas are to grow to a depth of three or four feet. Then mix this earth thoroughly with about the same amount of manure, the older the better, and fill the hole dug with this mixture to within six inches of the top. Break up some decayed sod fine and mix some bone meal and soot with it, also some wood ashes and a little lime, and fill up the remaining six inches. If the soil is not prepared until spring, then use only the manure, at least one year old, and bone meal.

CHEMICAL FERTILIZER

Superphosphate is recommended as a chemical fertilizer, or a mixture of three pounds of superphosphate, one pound of bone flour, one pound of nitrate of potash, one pound of sulphate of potash and one pound of nitrate of soda. This mixture should be lightly dug in early in March, and is sufficient for a patch sixteen feet square or a strip three feet wide and eighty-five feet long.

*Extract from a paper read at the annual convention of the Ontario Horticultural Association, held in Toronto, November, 1911.

Here in Toronto sowing in the fall is useless. About March twentieth is the earliest one may venture to sow here. From the fifth to the tenth of April is usually safe. Some seeds should also be sown in boxes or pots under glass or in the house so that the young plants may be transferred to the places in the row where seeds have failed to germinate. Plants should not be grown closer than six inches together. A birdscare of some kind should be put up at once, or the sparrows will get the seeds.

HEDGES

For hedges, only varieties well mixed and of about the same height and vigor, should be grown. Sow in two rows, leaving a space from eight to twelve inches or more between the rows. Plant stout posts painted or stained green along the rows with cross pieces on them to which to fasten the wire. When the plants are up say a couple of inches, place a slender twig about eighteen inches long by each for support. Then string the first wire eighteen inches from the ground. Tie the plant loosely to the twig and tie the twig firmly to the wire.

Some varieties have very few tendrils until they are over a foot high and all seem to shrink away from the wire during the earlier stages of growth. The upper wires should be supplied only as needed. Use the finest galvanized wire that will stand the strain. The object of this method of stringing is to get the best decorative effect in the garden by making the support as nearly invisible as possible and by keeping the tops of the plants all the time just above the support. If wire netting is used, it should be put up before sowing and be at least six feet high and with a six inch mesh or larger.

The advantage of brush as a support

Practical Plant Breeding, Figure 6

Practical Plant Breeding, Figure 7

is that it does not burn the tendrils and permits the plants to put out their branches naturally in all directions, as a tree does, instead of only to the right or to the left, as when trained on wires. But, until heavily covered by the vines, brush is very unsightly.

Sweet peas may also be planted to run over the lower branches of a climbing rose or vine. It will thus escape the scorching heat that is reflected from a bare wall or fence. The sweet peas will begin to flower just as the other climber is fading. But the ground must be made very rich, otherwise the sweet peas will not be able to compete with the woody climber.

THE USE OF TUBS

Even for formal decorative effect sweet peas may be grown in large tubs and placed like clipped box trees, along walks or on terraces. The tubs should be of wood, painted green, deep rather than broad, and with some holes bored in the bottom. Some broken flower pots should be put in and then a mixture of old sod, roughly torn up, and old manure, to within a few inches of the top, then some fine soil. An early start may be obtained by planting the tub in a greenhouse and removing it to the kitchen garden or some other inconspicuous position when all danger of frost is past.

When the plants have come up, they should be thinned out until they are about three inches apart. Some strong support such as galvanized wire rods, fastened together here and there, or a cylinder of wire netting, should be provided at once and the vines carefully trained up it. When the plants are about to flower, the tub may be removed to the terrace, lawn or other position for which it has been specially designed. Liquid manure and other stimulants should be used, but not too much lest the leaves wither.

Varieties that do not grow very high are the best to plant in tubs as they flower early in the season. Mount Blanc, a white, does well in quite small tubs, or large flower pots, as it grows only about eighteen inches high. It is also splendid for bare spots here and there in the perennial border. I have found Cupid sweet peas to be utterly useless in pots, in tubs and in the open ground.

IN CIRCLES

A favorite way of growing sweet peas in the Old Country is in circles in the middle of beds of annuals. A little tent of brush or wires is set up first and tied at the top. Then the seeds are sown. If the plants show a tendency to stretch away from the support, a light twig or wire can be so worked as to encourage the tendrils to take hold. Here this has the disadvantage that the support is unsightly until midsummer.

WATERING

Sweet peas require a great deal of water here in Toronto. The best way is to give them, say, half an hour with a very fine spray at sundown two or three times a week rather than a hasty splash every evening. But soft water that has stood in the sun is better than the chilly water from the hose. The fine spray, however, is most useful in knocking the green flies off the plants.

CULTIVATION

After watering the ground must be stirred up around the plants and always kept from looking smooth. Or a mulch of dried grass clippings may be laid upon the ground, but not too close to the vines. In this case not so much watering will be required and the ground need not be stirred so frequently, as the mulch will prevent it from baking hard and will keep it moist. A constant watch must be kept on the mulch itself lest it become mildewy or pasty and afford a pleasant rendezvous for injurious insects.

The foregoing methods of culture may appear extremely difficult and possibly forbidding. But we have only to turn to the horticultural magazines and books of the Old Country to see what we consider tender care of sweet peas here would there be looked upon as rank neglect. For they only get their magnificent successes with sweet peas after persistent vigilance against rabbits, cats, moles, mice, blackbirds, slugs, snails, stripe, mildew and a number of fancy fungous diseases that we are not troubled with here.

Floral Notes for December

Wm. Hunt, O.A.C., Guelph, Ont.

It is not yet too late to plant a few bulbs of hyacinth and narcissus if the bulbs have been kept in a cool place and are good and firm. It should be remembered that the main point necessary to success in pot culture in bulbs is to see that a good root system is developed before they are brought out into the light. If the pots are plunged or buried in sand or soil in the cellar they should be taken out from the sand before the top growth is much over two inches in height. Do not leave them in the sand too long.

CACTUS AND SUCCULENT PLANTS

Cactus, Agaves, Aloes and plants of a like nature should not be given too much water during the winter. The soil should be kept only barely moist. The Christmas or Lobster cactus (Epiphyllum truncatum) and winter flowering cactus may be watered a little more liberally. The summer flowering Cereus, especially the night flowering type should not be watered too heavily during the winter.

The different varieties of cactus, agaves, and so forth, and succulent plants generally grown in greenhouses and windows, are usually natives of countries where decidedly wet and dry seasons prevail. About half of the year very wet weather is the rule, the balance of the year being very hot, dry and arid. By keeping these plants moderately dry at the roots, it induces the season of partial rest that they get naturally in their native environments.

A Good Root Growth

The spring or early summer is the best time to re-pot cactus and succulent plants generally. Sandy soil not too rich in fertilizer with a liberal amount of drainage material such as broken flower pots and old mortar should be used for drainage. All of this class of plants dislike to be kept soddened with water at the roots. This last named condition often proves fatal to them.

Forcing Lilacs in Winter

Mrs. W. F. Hardy, Oakwood, Ont.

Last winter I tried growing lilacs in the house, as I had heard that they could be made to bloom indoors quite easily. As it will soon be the time of year when branches should be brought indoors for this purpose, I thought that readers of THE CANADIAN HORTICULTURIST would be interested in learning of my success last winter.

I brought two good-sized branches into the house on the last day of December. These branches were about five feet long and about one and a half inches thick at the base. I set each of them in a bucket of water and placed one near a window in the hallway and the other some distance back from the window in a warm corner of the same hall, which was near a stovepipe. In about three weeks' time nearly one hundred buds were showing, and by the middle of February they began to open into flowers. The one near the window did not come out as fast as the one which was in the warmer situation, but the flowers looked healthier and stronger

Lilacs Blooming in Winter

as they came out. The illustration shows a few of the sprays which were cut when the bloom was at its best. These were cut just about two months after I brought the branches indoors. They would have doubtless been considerably better but for the fact that some of them were slightly frozen on a very cold night when the fire happened to go out.

The Chinese sacred lily is an easy plant to handle, either in water or soil. It will bloom in six weeks.

A Pleasing Portion of the Floral Exhibits at the Recent Horticultural Exhibition in Toronto

My Favorite Flower and How I Grow It*

A. V. Main, Ottawa, Ont.

In spite of the great increase of flowers of recent years, the geranium has kept its ground. It is to-day more popular than ever, and I designate it my "favorite" flower, for my garden without it would be incomplete. It justly deserves its place. As a bedding plant for borders, boxes, vases, and flower beds it is practically unbeatable. It is a perpetual bloomer and free of insect pests or disease, easily managed, simple to propagate, greenhouse accommodation is not essential, and it is within the compass of all to grow. I find September the most satisfactory month for propagation.

PROPAGATION

I would like to emphasize here that we do not propagate enough. To keep our plants in a young condition is the secret of massive bloom and healthy foliage. The cuttings or slips should be good, sturdy, ripened growths that have been made through the summer and between three and five inches long, generally possessing three joints. With a keen edged knife trim off the bottom pair of leaves close to the stem, then make a clean cut below the joint. Allow the cutting several hours in which to heal over the wound. Prepare some soil put through a quarter-inch sieve, one part leaf soil, one part loam, one part sand, mix together, and fill two-inch pots fairly firm with it, with a layer of sand on the surface.

First of all put some rough leaves or fibrous turf in the bottom of the pot. Before inserting the cuttings give the pots a good sprinkling, using a fine rose can. Put one, two and three geraniums in a pot and about an inch and a half deep. Have a small wood label in each pot with the name of the variety, date of insertion, and other useful information.

Set the pots outside in a cool frame on a bed of ashes, and use a glass sash or window over them in case of rain coming too early. Keep them moist and shaded from sunshine, and also let them have air to avoid decay, or the cuttings becoming damp. In four to six weeks roots will be formed and repotting into two and three inch pots, according to their vigor, will be necessary. Use the soil recommended for propagation. Put the little plants, all nicely labelled, into individual pots in a sunny window and shade for several days till the roots become active.

WINTER TREATMENT

In winter the best treatment is to give them all possible light, water them about once a week and clean off any bad leaves. Turn the plants occasionally. The temperature should not go below thirty-eight degrees. In March pinch or break off the top of the plant, to induce side growths and then obtain a bushy geranium. Repot into four and five inch pots. Keep the plants well watered, and admit air when possible at mid-day.

*Extract from the essay that won first prize in the competition held during the past summer for prizes offered by Mr. R. B. Whyte, of Ottawa, and Mr. Hermann Simmers, of Toronto.

Manure for hot beds should be uniform in composition and texture.

The Ontario Vegetable Growers' Convention

THE best interests of the vegetable growers of Ontario are being promoted in many ways by the Ontario Vegetable Growers' Association. This fact was made manifest at the seventh annual convention of the association held November fifteenth, in Toronto. The attendance was much the largest in the history of the association. Growers were present from almost all parts of the province and from the province of Quebec as well. As usual, however, there was not as large an attendance of market gardeners from around the city of Toronto as there should have been. The growers present were manifestly there with a purpose. The discussions, therefore, were to the point and instructive. Each year a gratifying increase in the influence and importance of this association is noticeable.

President Delworth

Since the formation of the association one of its most efficient officers and workers has been the present president, Thos. Delworth, of Weston. In his remarks as president, Mr. Delworth laid emphasis on the importance of the use of a system of irrigation in connection with the growing of vegetables where there is a suitable supply of water available. The necessity for eliminating the middleman wherever practical was pointed out. Mr. Delworth also advocated that the new government at Ottawa should be urged to reintroduce and pass the measure establishing standard weights by the bushel and by the bag for vegetables that was introduced in the last session of the Dominion Senate, but which did not receive its third reading because of the dissolution.

SECRETARY TREASURER'S REPORT

The report of the secretary-treasurer, J. Lockie Wilson, of Toronto, described the savings that had been effected by several branches of the association through cooperative buying and lines of work the branches were carrying on successfully. The need for a greater supply of labor was touched on, it being stated that in the vicinity of St. Thomas alone one thousand more laborers than are available are needed.

The success of the experiments conducted in New Ontario under the direction of the association was mentioned. The possibility and desirability of specializing in potato growing in New Ontario was urged. If this is done, however, it will be necessary to secure a readjustment of freight rates, as it now costs more to ship potatoes from New Liskeard to Toronto, a distance of three hundred and thirty-four miles, than from St. John, N.B., to Toronto, a distance of one thousand miles.

ORGANIZATION

The necessity for being better organized and the benefits that would follow were described by C. W. Baker, of Tambling, Ont. Mr. Baker declared that the association might increase its membership to five thousand if the present members would take hold of the work with the necessary enthusiasm . That the convention appreciated the points that were made by Mr. Baker was shown by the passing of a resolution appointing Mr. Baker to represent the association this winter for several weeks in the organization of new branches of the association. Mr. Baker's paper will be published in an early issue of THE CANADIAN HORTICULTURIST.

TOMATO GROWING FOR EXPORT

One of the best papers ever presented at a convention of the association was read by George Cooper, of Grimsby, Ont., entitled "Tomato Growing for the British Market." This report will be published practically in full in THE CANADIAN HORTICULTURIST. Mr. Cooper dealt not only with the matter of the varieties of tomatoes now grown, but also with the varieties demanded by the British consumer, the best methods of shipping tomatoes, of distributing them to the Old Country markets, the methods of handling tomatoes followed in other countries, and many other points. The paper was most comprehensive and instructive. The conclusion reached was that at present tomatoes cannot be shipped with profit to the Old Country, but there are great possibilities for increasing the production of tomatoes in Ontario, and no reason why in time, through the adoption of proper and systematic methods a profitable market cannot be developed in Great Britain. To accomplish all this, however, will be a matter of years.

SMALL FRUIT CULTURE

An entertaining, instructive talk on new methods in small fruit culture was given by W. H. Kerr, of Ottawa. Mr. Kerr dealt with the methods of growing varieties of small fruit that he has found most successful, and touched a little also on the matter of varieties.

WORK OF THE STATIONS

The work being done at the Ottawa, Guelph, and Jordan Harbor Experiment Stations was described respectively by W. T. Macoun of Ottawa, H. H. MacLennan of Guelph, and A. T. Logsdail of Jordan Harbor. Mr. Macoun and Mr. MacLennan told the growers present quite plainly that they were not taking the interest in the work of the stations that they should. Growers seldom visit them and almost never offer suggestions concerning experiments they would like to see tried and do not do what they might to induce the local and Dominion Governments to extend the work being carried on in the interest of vegetable growers. Mr. MacLennan had samples of tomatoes and potatoes with him which he used to illustrate the results of experimental work he had conducted. He stated that the horticultural department at Guelph was handicapped through not having more greenhouses in which to prosecute experimental work, and that he realized that the most valuable experimental work that could be carried on was in relation to the growing of crops under glass.

The members of the association showed that they realized that the criticism to which they had been subjected was justified by passing a resolution, moved by Mr. Fraser, of Leamington, and seconded by Mr. J. W. Rush, of Humber Bay, urging the Government to provide more greenhouse accommodation at Guelph. The directors were requested to press this matter upon the Government and to place themselves in touch with the work being conducted at the college. Further reference will be published in THE CANADIAN HORTICULTURIST to the reports of Messrs. Macoun and Logsdail. Mr. Wm. Dreher spoke briefly in regard to the work being done at Macdonald College, Quebec, and by the Quebec Vegetable Growers' Association.

SEED POTATOES

An address on the importance of proper seed selection was delivered by Dr. W. W. Tracey, Department of Agriculture, Washington, D.C., mention of which will be made more fully in later issues of THE CANADIAN HORTICULTURIST.

A paper entited "New Ontario as a Place to Grow Seed Potatoes," was read by Mr. T. G. Raynor ,of the Ontario Department of Agriculture. This will be published in THE CANADIAN HORTICULTURIST in full.

EVENING SESSION

At the evening session a valuable address, entitled "Marketing Problems,' was given by Paul Work, of Cornell University, Ithica, N.Y. This address was illustrated by a large number of excellent steriopticon views. The views showed packing houses, market gardeners' wagons loaded with vegetables, methods of picking and packing vegetables in the field, and other similar subjects. This address, as well as some of the illustrations used, will be published in THE CANADIAN HORTICULTURIST. Addresses were also given at this session by Mr. C. C. James, Deputy Minister of Agriculture ,and by Hon. J. S. Duff, Minister of Agriculture, Toronto. Mr.

The Exhibit of Vegetables was One of the Features of the Ontario Horticultural Exhibition held in Toronto Last Month. A Portion of the Exhibit is here shown. The Quality of the Exhibits was Excellent

James gave an interesting account of the difficulties people living in rural sections in various parts of Europe, such as Sweden, have to contend with in the cultivation of the soil. He believed that were these people to be given information about conditions in Ontario they could be induced to emigrate to this country.

Before the convention closed a resolution was passed urging the Ontario Government to reserve fifty acres of ground on the Monteith Experimental Farm in New Ontario for the growing of potatoes and to place a suitable man in charge of the work. The Dominion Government was also urged to establish an experiment station in the middle of the clay belt in New Ontario for the growing of grain and vegetables and to distribute the products of this farm to farmers and gardeners at cost prices.

New Ontario For Seed Potatoes*

T. G. Raynor, Department of Agriculture, Ottawa

THE question has been raised by your association of the possibility of New Ontario proving a good place for growing seed tubers. In order to test the matter, I believe arrangements were made through your secretary this spring to supply half a dozen farmers, three of whom lived in the vicinity of Charlton and the other three in the neighborhood of New Liskeard in New Ontario, with seed tubers of the Early Olive and Green Mountain varietits. When the potatoes arrived some disappointment was expressed in the varieties, and, in two cases, in the quality of the stock; the farmers thought the potatoes very small to send out for seed. However, all six tried the seed and the results were varied.

Such an experiment should prove successful. Many farmers, when changing their seed, procure it from districts located north of them, and if possible from a different soil. Local grown seed is usually better for the locality producing it than seed imported from southern districts. Northern grown seed tends to early maturity. Acting in accordance with this principle, a number of potato growers in England send to Scotland for their seed. Mr. Macoun, the Dominion Horticulturist, has found that seed tubers from the Maritime and western experimental farms, tested at the Central Experimental Farm with their own seed, do much better even the first year.

It is a common practice among farmers to change their seed potatoes frequently. Their idea is that the seed runs out, and so it does, more especially when the small tubers are used. But when a variety does well and becomes acclimatized, frequent changes are unnecessary. In northern Sweden, for instance, some varieties of potatoes have been grown for over one hundred years, and are good yet. It may be observed, however, that some experiment stations have found that in working with the product of one tuber, the strain will begin to deteriorate in about twelve years and will not be profitable to grow for more than twenty years at the most. It is different with varieties where the tubers are selected indiscriminately. For instance, I have met in Ontario at least six men who have grown one variety of potato for over twenty-five years, and to-day the tubers are as good if not better than at first. This was done in selecting large uniform tubers for seed. Among the varieties so tested were Hebron, Empire State, White Elephant and Early Rose. At the experimental farm at Guelph, Prof. Zavitz has been testing several varieties, with ordinary selection, for twelve or thirteen years, and he finds that they continue to improve in both yield and quality.

Since the organization of the Canadian Seed Growers' Association, a systematic effort has been made by potato growers in different parts of Canada to improve the crop by the hill system of selection, either from individual tubers or by selecting them collectively.

*Extract from a paper read at the annual convention of the Ontario Vegetable Growers' Association, held in Toronto, November 15.

As a supplier of potash, the oldest form of fertilizer in use is hardwood ashes.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables:

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,300
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662
	108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,870
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed,

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

A REMARKABLE DEVELOPMENT

If the development of the fruit industry in Ontario may be judged by the improvement that has taken place during the past seven years in the number and quality of the exhibits of fruit at the Ontario Horticultural Exhibition, and we may believe that it may, then it has been extraordinary. Seven years ago, when the first exhibition was held in the old Granite Skating Rink, Toronto, less than twenty boxes of fruit were shown. A larger number of barrels of fruit were exhibited, but the packing, both of the boxes and of the barrels, was very inferior. At that time the art of proper packing was practically unknown in Ontario. So discouraging was this feature of the exhibition that the then Minister of Agriculture, the late Hon. John Dryden, publicly expressed the view that Ontario would have to bring expert packers from the Pacific coast states to show our Ontario fruit growers how to pack their crops. At that time no one anticipated that there would so soon be such a wonderful improvement as has since taken place.

Last week over three thousand boxes of fruit were on view at the exhibition. Many more would have been shown had space been available. Almost all of this fruit was splendidly packed, the pack of most of it being close to perfect. In addition the fruit was of better color, size and quality than ever before. While this was due in part to the dry season, which enhanced the color of the fruit, it was due even more to the more thorough spraying, pruning and cultivation now practised in the orchards of Ontario. The exhibition made it manifest that Ontario is now about able to hold its own with any other apple producing section on the continent. This means that the time has come when we should undertake the holding of a national apple show. The members of the Ontario Fruit Growers' Association did not endorse this proposal at their recent convention, mainly because of the fear that Ontario could not compete in an average season against the better colored fruit of British Columbia. What of that? We should not be afraid to take a beating if we have to. We have other advantages, such as nearness to markets, the lower price of our fruit lands, and a more uniform rainfall, that more than offset any present advantages in the coloring of our fruit and which cannot be advertised as they should be by anything less than the holding of a national apple show. Such a show would serve to draw the attention of the world to our great fruit possibilities. It would also give us an opportunity to compare our fruit and our methods of packing with the fruit and methods of other noted fruit districts. Thus, while we might lose some of the important awards at the first exhibition, we should learn where we are still weak and thus be enabled to do better in later efforts. Ontario needs the stimulus and enthusiasm which such an undertaking would provide. This matter must not be allowed to drop but must be kept to the front until such a show is held.

For the present it is evident that the Ontario Horticultural Exhibition has outgrown its present quarters. A strenuous effort should be made next year to secure the use of the armories. The Ontario government should be urged also to increase the present grant of two thousand dollars to at least five thousand dollars a year.

SHOULD GRANT APPLICATION

At the convention of the Ontario Horticultural Association, held in Toronto last month, it was decided to ask the Ontario government to increase the annual grant to the horticultural societies of the province from ten thousand dollars to twelve thousand five hundred dollars a year. The government should grant this request. During the past five years the membership of the horticultural societies in Ontario has almost doubled, having increased from around six thousand to almost eleven thousand.

In the fall of nineteen hundred and nine, because of the great increase that had taken place in the membership of the societies up to that time, the government was asked to increase the grant from eight thousand dollars to thirteen thousand dollars a year. This request was not granted. Instead, the government increased the grant by two-thousand dollars, or to ten thousand dollars. Since then the membership of the societies has increased by approximately 3,000, or about one-third. The government grant in consequence is proving quite inadequate and does not enable the societies to carry on the work that they otherwise might. After the first of the year some four new societies are to be organized. Each new society that is formed decreases the amount of the government grant available for the other societies. Thus conditions are steadily growing worse.

In asking that the government grant should be increased to twelve thousand five hundred dollars, the societies are asking for even less than they did two years ago. The excellent results that are following the work of the horticultural societies are so apparent in almost every city or town of the province the government will be amply justified in increasing the grant to the extent desired.

WOULD HELP FRUIT INTERESTS

The fruit growers of Ontario may be pardoned for hearing with interest the proposals of the new leader of the Ontario Liberal Party, Mr. N. W. Rowell, in regard to fruit growing. On the whole they show an acquaintance with the fruit interests of the province not commonly met with in a political leader not actively in touch with agriculture.

After criticising the government for not realizing more clearly the immense possibilities of the fruit interests of Ontario, which produces over 70 per cent. of the fruit grown in Canada, and drawing attention to the vastly increased returns that have been obtained from fruit growing where improved methods have been introduced, Mr. Rowell calls for greater expenditures by the government on behalf of the fruit industry. In this connection Mr. Rowell advocates the establishment of demonstration orchards in practically every leading fruit growing section of the province. He then proposes that packing schools should be established in the fruit districts and that certificates be granted to those packers who succeed in passing such tests as may be arranged by the government, on much the same basis as has been done in connection with the packing schools which have proved so successful in British Columbia.

Mr. Rowell then touches a point of vital interest in many of our leading fruit dis-

tricts. He criticises the government for not having done more to prevent the spread of injurious insects, such as the San Jose scale, and of fungous and other diseases of fruit trees, by taking the responsibility for this work and placing it in the hands of thoroughly competent provincial inspectors to be appointed by the government. This is a reform which has long been needed. Both this proposal and the one in regard to the establishment of packing schools were indirectly endorsed last week by the members of the Ontario Fruit Growers' Association, who passed resolutions advocating the provincial government to adopt such measures.

Finally Mr. Rowell claims that immigration into the fruit districts of Ontario, and the fruit interests of the province as a whole can be best promoted by the holding of a national apple show which, he pointed out at Guelph, would serve to draw the attention of the world to our great fruit districts. In this connection Mr. Rowell points out that while at the Ontario Horticultural Exhibition only $1,500 is offered in prizes for fruit, British Columbia, which does not produce one-quarter the amount of fruit grown in Ontario, offered $50,000 in prizes at the National Apple Show held in that province a year ago. From this we may presume that Mr. Rowell is in favor of not only increasing the grant to the Ontario Horticultural Exhibition, but in making a substantial grant towards the holding of a national apple show.

Whether the party Mr. Rowell represents is elected to power or not the stand he has taken on these questions will prove of benefit to the fruit industry. His proposals are timely and applicable, and the Conservative party, which has aided the fruit interests materially during the past few years, will do well to pay attention to them.

Fruit growers in various sections of British Columbia have adopted a novel method of creating a market for their fruit in the Old Land. They unite in putting up car loads of high-grade fruit and consigning it direct to friends and private parties in Great Britain. In some cases this fruit is accompanied by a representative of the growers. As great care is taken in the packing and selection of the fruit the first car load paves the way for further shipments. Owing to the success that attended a car load of apples that was sent by residents of the Okanagan valley to friends in the Old County last year, the Vernon Board of Trade has made arrangements to forward two cars this year. The cost of sending a box to a specified address at any point in Great Britain is a dollar and a half, and to points in Belgium, France or Holland, two dollars. Fruit growers in the east might well follow the example which has thus been set.

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"How can advertisers afford to sell their goods cheaply when they pay so much to advertise them?" is a question that must occur to many, when they read of the large amounts spent by different firms to tell the public about their goods. It is a fact that, quality for quality, advertised goods are usually cheaper. Why?

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Advertising enables the dealer to reduce his profits on individual sales by increasing the number of sales.

This explains why firms which advertise extensively and consequently do a big business, can always give better value than the firms which say they do not advertise, because it costs too much.

PUBLISHER'S DESK

Christmas is still three weeks and a half away—a very long time to the little people, if not to us adults—but as there is nothing like being forehanded we want you, our readers, to know that our best wishes for a happy Christmas and a New Year full of spiritual and material prosperity are yours.

The January issue of THE CANADIAN HORTICULTURIST will be full of timely, interesting articles for the fruit, flower and vegetable grower. In addition to containing extracts from papers read at the recent provincial fruit and vegetable growers and horticultural conventions that were held during the past month and that will be held this month by the fruit growers of Quebec, prominence will be given to an article by prominent authorities on fruit growing in the leading fruit provinces of Canada dealing with the varieties of fruit best adapted for growth in the different provinces. This article will be valuable for those of our readers who are planning to purchase nursery stock for planting next spring. In addition, there will be an article by Mr. H. S. Peart, of Burlington, dealing with the best varieties of small fruit for Ontario. The feature of the floral department will be the special article by Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, describing Lady Grey's garden at Government House, Ottawa, now the garden of the Duke and Duchess of Connaught. This article will be profusely illustrated by photographs taken specially for THE CANADIAN HORTICULTURIST. Mr. E. I. Mepsted, an officer and a past president of the Ottawa Horticultural Society, will give the first of a series of articles, to be contributed by him, each of which will contain timely suggestions for the amateur flower grower on the care that should be given their flowers during the month that is to follow. There will be a special article also by Mr. Wm. Hunt, of Guelph, entitled "Plants and Flowers for the Window." The issue throughout will be well illustrated, and should furnish a treat for our readers.

The past year has been the most successful in every way in the history of THE CANADIAN HORTICULTURIST and its small sister THE CANADIAN FLORIST. Our total receipts from advertisements and from subscriptions have been larger than ever before, and during 1912 we anticipate a still further improvement. The circulation of THE CANADIAN HORTICULTURIST is to-day larger than ever before, and is steadily growing. All this means that we are going to be able to give our readers better and still better value for their money in spite of the fact that the subscription price of THE CANADIAN HORTICULTURIST is lower than that of any other similar magazine of its class on the continent.

Owing to the numerous conventions and exhibitions held during the past month and the consequent pressure on our editorial columns, a number of valuable articles had to be crowded out of this issue of THE CANADIAN HORTICULTURIST. These will be published as rapidly as space permits.

The Ontario Horticultural Convention

THE four sessions of the sixth annual convention of the Ontario Horticultural Association, which was held in Toronto, November 16 and 17, were crowded full of interesting addresses and discussions on the growing of flowers and with the consideration of matters relating to the advancement of the horticultural interests of the province, more particularly as they relate to the management of our horticultural societies. The attendance of delegates was the largest in the history of the association. From one to three or four delegates were present from societies in all parts of the province from Vankleek Hill and Ottawa in the east to Windsor and Goderich in the west

More and more the association is becoming a means of promoting the interests of the local societies. In consequence, much of its attention has to be given to matters of policy relating to the societies. One of the most important resolutions passed at the recent convention was one moved by W. B. Burgoyne, of St. Catharines, and seconded by J. P. Jaffray, of Galt, urging the Ontario government to increase the grant to horticultural societies from ten thousand dollars to twelve thousand five hundred dollars a year. This increase has become necessary as a result of the increase in the membership of the horticultural societies, which now amounts to almost eleven thousand, and by the fact that a number of new societies are to be organized after the first of the year. This resolution will be laid before the government, which will be urged to give it favorable consideration.

In view of the splendid work being done on behalf of the individual societies by the Central Organization, it was decided to make a special effort this year to induce the former to affiliate with the latter. In this connection and in order that there may be no unfairness in the affiliation fee charged, as well as with the object of increasing the funds of the provincial association, it was decided to change the amount of the annual fee charged the local societies by increasing the fee to the larger societies. Hereafter the societies with a membership of three

(*Continued on page 292*)

"I do express the hope that, by possessing and controlling such a book as this Encyclopædia Britannica, Cambridge may become, more than it has ever been in the past, an inspiring centre of world-wide intellectual life, and able to carry out not only its national but also its international function."

The late S. H. Butcher, Pres. of the British Academy, M.P. for the University of Cambridge.

The Christmas Season
AND
The New (11th) Edition
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"Concerning the eleventh edition, it is a gift of unspeakable value to all classes of readers from the plain man up, one of those human debts that money does not discharge.....Every growing family of Canadians, pretending to any intelligence, whether they have carpets or not, ought to be provided with the eleventh edition of the Encyclopædia Britannica." From a Review in the Manitoba Free Press, August 5th, 1911.

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THE principal motive with most persons when making a Christmas present is to give something useful but at the same time "distinctive," and the great difficulty is to think of something suitable to give. The new Encyclopædia Britannica, while more than filling every ordinary requirement, has a special appropriateness as a Christmas gift. **Christmas is a season** when men and women may be said to yield to a recognition of ideals, aspirations and traditions, which are the common property of the whole of mankind. Being a festival observed in all Christian countries, it typifies the truth that the most vital of human interests disregard the barriers of nationality, and being established in commemoration of events which occurred ages ago it expresses the debt of the present to the past.

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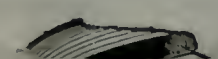

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Drawing its contributors from every civilized country, the 11th edition is based on the essentially cosmopolitan character and origin of the main factors which make for human progress, and in freely applying the historical method in every department of knowledge, there has been constant endeavor to express the present in terms of the past in which that present finds its roots.

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THE Encyclopædia Britannica is so obviously a gift the usefulness of which will be shared by its possessor with others, young and old, that it is impossible to think of it in the light of a Christmas present without a thought of its general utility in the household. The amount of service which it can render under such circumstances is clearly only limited by the extent of the desire of the members of the family for information.

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BUT perhaps the chief merit of the book as a household treasure is that, from merely referring to it, its possessor is led to read its articles for the pleasure they afford. He soon finds that the vast fund of knowledge accumu'ated in this book by the leading authorities in every branch of human achievement has all the interest of a real contribution to literature. So universal is its appeal that anyone who has the slighest interest in the facts or the romance of nature or of life is bound eventually to become engrossed in its contents. **These light and incredibly thin volumes** picked up out of idle curiosity are laid aside with reluctance, and the casual enquirer is unconsciously transformed into the systematic student.

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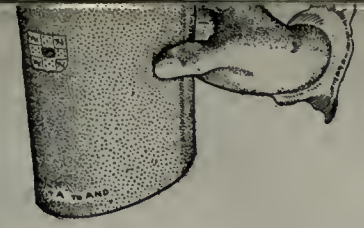

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hundred or less will be charged a fee of two dollars each. For each additional hundred members a society has, it will be charged an extra dollar until a maximum fee of five dollars is reached.

OFFICERS ELECTED

The following officers were elected::

Honorary Directors—W. B. Burgoyne, St. Catharines; W. T. Macoun, Ottawa; Prof. H. L. Hutt, Guelph; Major H. J. Snelgrove, Toronto; R. B. Whyte, Ottawa.

President, Rev. A. H. Scott, Perth; First Vice-President, J. P. Jaffray, Galt; Second Vice-President, W. Jeffers Diamond, Belleville; Treasurer, H. B. Cowan, Peterboro; Secretary and Editor, J. Lockie Wilson, Toronto.

District Directors—F. B. Bowden, Vanleek Hill; W. S. Moorcraft, Bowmanville; J. H. Bennett, Barrie; J. O. McCulloch, Hamilton; T. Cottle, Clinton; G. W. Tebbs, Hespeler; W. W. Gammage, London; H. J. McKay, Windsor.

Delegates to American Civic Association, Washington, Messrs J. Lockie Wilson and W. B. Burgoyne; Representative to Canadian Exhibition, Major H. J. Snelgrove.

THE SESSIONS

In his presidential address Mr. R. B. Whyte, of Ottawa, described the excellent results that have attended the work of the Flower Guild in Ottawa. What he said was of more than ordinary interest to the delegates. The system introduced to educate the children in the cultivation of plants by the distribution of bulbs and seeds, the holding of meetings in private gardens, the distribution of helpful literature and the holding of exhibitions was outlined in a practical manner. Stress was laid on the necessity of providing school children with attractive surroundings.

The treasurer, H. B. Cowan, of Peterboro, read his report, which showed total receipts of $177.68 and expenditures of $84.35, and a balance on hand of $93.33.

Rev. A. H. Scott, Perth, Ont.

The new president of the Ontario Horticultural Association has long been actively identified as an officer with the Perth Horticultural Society and with the provincial organization since about its inception. He is a great lover of flowers and last year acted as a delegate from the Ontario Horticultural Association to the convention of the American Civic Association held in Washington, D.C.

SUPERINTENDENT'S REPORT

Superintendent J. Lockie Wilson dwelt on the strength of the association. There are now seventy-five societies in the province with a membership of about eleven thousand. The spirit of home and civic improvement is spreading throughout the length and breadth of Ontario through the efforts of the members. Only about two-thirds of the societies have affiliated with the central association. This is not as it should be, Superintendent Wilson said, because this central association is working continually for the benefits of the local associations.

The annual report of the horticultural societies is in greater demand than ever, and the Department of Agriculture was unable, this year, to supply the demand therefor. A large number of the public school teachers in the province are now utilizing this report in the rural schools. Lawn and garden competitions have been successfully conducted by many of the societies in the province where prizes are offered for the different classes of citizens, viz., those who have their gardens cared for by employees, and those who do the work within their own families. Prizes have also been offered for the best kept front and back yards. The distribution of plants, bulbs and seeds is also work that is proving invaluable to many sections. The decoration of school buildings with window-boxes is adopted by several societies, and the school garden idea is being taken up by others with the best possible results.

A SCHOOL GARDEN

Mr. Harvey Gayman, principal of the Rittenhouse school, at Jordan Harbor, gave an interesting address on "The School Garden." Mr. Gayman has the reputation of having the finest school garden in Canada. A fuller report of this address will be given later in THE CANADIAN HORTICULTURIST.

Mr. T. D. Dockray, of Toronto, gave a splendid address on "Sweet Peas, Varieties and Cultivation," which brought out considerable discussion. A portion of this

(*Continued on page 302*)

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The Ontario Horticultural Exhibtion

BIGGER, better and more popular with fruit growers than ever before, the Ontario Horticultural Exhibition held in Toronto, November 14 to 17, truthfully reflects the progress that is being made in the industry of fruit growing in the province of Ontario. There were almost three times as many entries as last year, and the quality of the exhibits was superior to anything before seen at an Ontario fruit show. This exhibition has worked wonders during the past seven years in advancing the standards of Ontario fruit growers as regards not only the quality and proper coloring required in first class fruit but in the matter of box and barrel packing as well. Seven years ago only about eleven boxes of apples were exhibited, and they were poorly packed. This year over three thousand boxes were shown, and practically all were splendidly packed, while still more would have been shown had space been available.

Pres. Frankland

The exhibition was essentially a provincial apple show. Due to the dry, hot season growers had found it almost impossible to keep peaches, grapes and pears for exhibition at this fair, and the entries in these classes were small. The flower show has never been excelled, but no other department has made the same progress as has the apple show. There were almost three times as many apples on exhibition as there were last year. So numerous were the exhibits in the apple classes that several counties had to cut down the size of their exhibits. The dry season, so unfavorable to other classes of fruit, gave to the Ontario apples a higher color than they would have in an ordinary season, and so increased the attractiveness of the exhibits.

BOX PACK POPULAR

The popularity of the box as a package for fancy fruit was much in evidence at this show. Three years ago there were on exhibition three hundred and twenty-one boxes and one hundred and thirty-seven barrels. This year there were almost three thousand boxes and only seventy-three barrels. The barrelled fruit was almost all entered in the competitive classes, Brant county alone having barrels of apples in their display exhibit.

The packing of the boxed fruit showed great improvement. Last year loosely packed, and much bruised fruit, was in evidence. This year the packing was uniformly good and only in a few cases was the fruit bruised. Looseness of packing in the case of one or two county exhibits was the most serious criticism heard. Prominent among the winners in the classes for boxed fruit were: W. G. Watson, Dixie; W. L. Hamilton, Collingwood; the Norfolk Fruit Growers' Association, and Jas. E. Johnson, of Simcoe, Ont. The sweepstakes box of apples grown by Jas. E. Johnson were Northern Spys of uniform size, high color, and perfectly packed in the 3-2 style.

Barrels of apples did not have the same relative importance as in former years, but the competitive classes were well filled, the most of the prize-money going to fruit growers' associations or their members.

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OAKVILLE : ONT.

Paeonies
Iris
Perennial Phlox
Delphiniums
Shasta Daisies
Kniphofia
Heleniums
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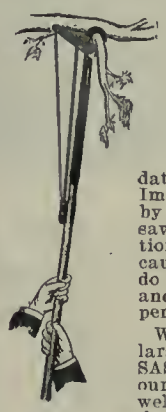

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Amongst the larger winners of firsts were the Norfolk Fruit Growers' Association; Elmer Lick, Oshawa; Jas. E. Johnson, Simcoe; P. C. Dempsey, Trenton; Isaac Rush, Norwich; and the Brant County Fruit Growers' Association.

In the plate classes the names of W. H. Bunting, W. G. Watson, F. G. Stewart, Homer, and the Wentworth Fruit Growers' Association appeared frequently on first prize plates. On the cones, W. G. Watson got eight firsts on the twelve varieties shown.

THE COUNTY EXHIBITS

The greatest attraction of the fair was the numerous and excellent county exhibits, most of which were put up through the instrumentality of cooperative fruit growers' associations working in conjunction with the district representatives of the Ontario Department of Agriculture. A particularly good exhibit was that of Lambton county. On a slanting stage three hundred and fifty-two boxes of apples were erected in the form of a rectangle, sixteen boxes high and twenty-two boxes wide. On the face of the boxes a map of the county was shown in red apples, the words "Lambton County" appearing in Greenings. Lake Huron and the St. Clair River were shown in green apples with red lettering, and the adjoining counties were shown in apples wrapped in white paper.

One of the most attractive exhibits at the fair was that of the fruit growers of Northumberland and Durham. The central attraction in their exhibit was a ship twenty feet long, fully equipped with decks, masts, smoke stacks and rigging—and all made of apples. Green apples were arranged around the base to give a water effect. In all there were eighteen barrels of apples in the ship. Arranged around the ship were six hundred boxes of apples of standard varieties grown in the two counties.

Along the west side of the St Lawrence Arena were arranged the exhibits of Norfolk, Elgin, Ontario and Prince Edward counties. In these four exhibits were over one thousand boxes of apples, Ontario county leading with four hundred and fifty-seven boxes. Prince Edward and Norfolk had over two hundred boxes each. The exhibit from Prince Edward was unfortunately wrecked through a scaffold falling when being put in place, and did not make the display that it otherwise would.

Two of the best packed exhibits in the building were from Wentworth county and the Georgian Bay district, the first with one hundred and nineteen boxes, the second with one hundred and forty. The latter exhibit was of particular educational value, as all of the apples in the exhibit had been grown on what three years ago were regarded as worthless orchards and utterly neglected.

The most easterly provinces of Ontario had on exhibition fifty-six boxes of their favorite variety, the McIntosh Red. An exhibit put up by the Brant County Fruit Growers' Association—an attractive arrangement of boxes, barrels, plates and cones—proclaimed to visitors the splendid fruit growing possibilities of that county.

New Brunswick was the only other province having exhibits. Fifty well packed boxes of such fancy dessert varieties as Fameuse, Dudley and McIntosh showed the kind of fruit that is being produced in New Brunswick.

EXHIBIT OF FLOWERS

So attractive was the flower show that further decorations were not needed to ornament the Arena. The arrangement of the exhibit was most pleasing, especially as one entered by the main door. Banks of flow-

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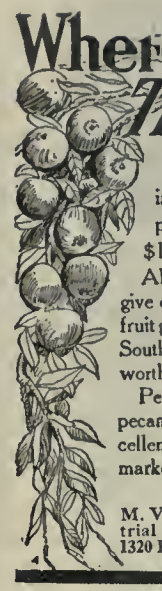

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SAUCERS AND
STRAIGHT PANS
Canada's Leading Pot Manufacturers

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ers to the left of the entrance were especially fine. The cut chrysanthemums made a particularly good showing, most of the awards going to Jennings, of Brampton. The bush plants were by all means the best ever seen at a fair in Toronto, Sir Henry Pellatt being the principal winner. The awards for the best tables of cut flowers decorated by society ladies of Toronto were made as a result of public ballot. The winner was Mrs. G. A. Reid, of Toronto, with Miss Shanly second and Mrs. E. F. B. Johnson third. Exhibits of carnations, roses and made-up work were all very fine

THE VEGETABLE DISPLAY

Only passing mention can be made of the vegetables. In quality, if not in quantity, they compared favorably with exhibits in other classes, and were a credit to their growers.

Attractive and interesting exhibits were made by several prominent firms handling commodities that are necessary in horticultural work. Among these were the Spramotor Company, of London; the Flanders Manufacturing Co., Pontiac, Mich.; Goold Manufacturing Co., Senaca Falls, N.Y.; and the Specialty Manufacturing Co. of Grimsby with spraying outfits. The Chemical Laboratories of Toronto had an exhibit of their spray mixtures, as had also the Niagara Brand Spray Co., of Burlington, and the Canada Rex Co., of Brighton. The two latter had spraying machines as well. The Harris Abbatoir Co., of Toronto, and the Dominion Potash Co. had fertilizer exhibits.

It is regrettable that Toronto people do not patronize the fruit show more than they do. This year the attendance was larger than ever before, but the increase was due to more visitors from outside points. The majority of those who attended were from outside Toronto. On Thursday fifteen hundred outsiders presented railroad certificates for exchange, and Saturday's number was believed to be several hundred in excess of Thursday's. The fair is growing, however, and growing rapidly. In 1910 there were twice as many exhibits as in the previous year, and the fair this year showed a corresponding growth over last. It showed also that Ontario is ready for the holding of a national apple show. If the fair continues to grow in the future as it has in the past, larger quarters will have to be found than the St. Lawrence Arena, as this year there was not room for all the exhibits.

Ontario Fruit Growers' Convention

Confident and optimistic was the note that was struck by President D. Johnson, of Forest, in his opening address at the 53rd annual convention of the Ontario Fruit Growers' Association held in Toronto, November fifteenth and sixteenth. In an excellent address he traced the history of fruit growing in Ontario from the small side line that it was fifty years ago to the prominent position that it now occupies as one of the most important branches of agriculture in Ontario. Fruit growing was never so profitable or fruit growers so prosperous as today. Over production, the bug-a-boo of the early growers, does not worry fruit men now. They are going ahead and planting at a rate never before dreamed of. President Johnson claimed that the development of the west would afford a market for all of the fruit we will ever produce. The leasing of neglected orchards, a practice that has become quite common in the last two or three years, the speaker viewed as a good thing for the industry.

PLUM TREE IN BEARING

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Mr. Johnson dwelt strongly on the need of more progressive legislation for the encouragement and regulation of the fruit growing industry. Inspection at point of shipment, provincial inspection of insect pests and diseases, more thorough instruction in apple packing and a special fruit branch in the Department of Agriculture, were urged by the president.

PROPOSED LEGISLATION

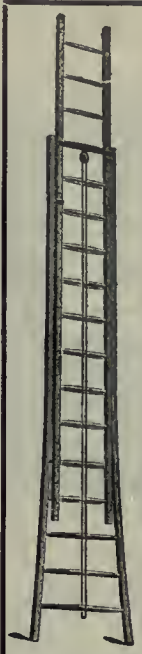
Much dissatisfaction with our present method of inspecting fruit was expressed by the members of the association. The following resolution moved by E. D. Smith, and seconded by L. A. Hamilton, met with the approval of every grower present: "We urge on the Dominion Government that at the request of a shipper, an inspector be sent to inspect cars of fruit at point of shipment, and that the inspector sign certificates as to grade." It was pointed out that at present the shipper is at the mercy of the buyer, and it is often difficult and expensive to secure redress when the commission merchant claims that the fruit shipped was not up to the grade marked on the box or barrel.

A strong resolution was passed requesting that the appointment of inspectors of insect and fungus pests be taken out of the hands of the township councils, and that inspectors be appointed by the Provincial Government. Some of the inspectors now appointed are doing excellent work, but in many cases the so-called inspection is worse than useless.

The Ontario Government will be asked also to establish a school in fruit packing at the Ontario Agricultural College, and that all inspectors be required to have a certificate from that school; also, that box packing courses be given in each county of the province. Another resolution was passed to impress on the Government the importance of working for new varieties at the Jordan Harbour Experiment Station. It was also requested that a man be sent to Europe for a period of six months, if necessary, to study the markets and secure information about cooperative methods. It was recommended that a committee be appointed to secure information on the best styles of packing.

DOMINION LEGISLATION PROPOSED

Owing to the differing ideas of inspectors and packers, there is not sufficient uniformity within the various grades. A resolution was passed proposing that the Fruit Marks Act be amended to establish minimum sizes for each variety of appies for the various grades. To ensure uniform small packages, another resolution suggested that all forms used in manufacturing establishments should be of a type decided on by the



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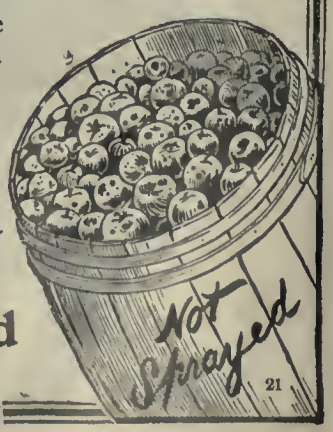

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Dominion Government, and should bear the stamp of that government.

Further resolutions requested that the trade commissioners in Great Britain report to our daily papers prices realized on sales of Ontario fruits that the railway commission be urged to force transportation companies to cull out defective cars used for fruit, and that it be necessary for them to guarantee refrigerator cars on all fruits shipped west of Port Arthur after November 1; that the Minister of Agriculture appoint a committee of three fruit authorities in each fruit-growing province to examine and recommend for appointment fruit inspectors. Finally, the association heartily commended the action of Premier Borden in his choice of Mr. Martin Burrell, a fruit grower, as Minister of Agriculture.

DIRECTORS ELECTED

The election of directors for the various districts resulted as follows: 1, Wm. Alford, Ottawa; 2, W. C. Bevin; 3. W. H. Dempsey, Trenton; 4, W. J. Bragg, Belloville; 5, Wm. Stainton, Oshawa; 6, L. A. Hamilton, Lorne Park; 7, J. W. Smith, Winona; 8, A. Onslow, Niagara-on-the-Lake; 9, Jos. Gilbertson, Simcoe; 10, D. Johnson, Forest; 11, R. R. Sloan, Blythe; 12, F. M. Lewis, Burford; 13, Adam Brown, Owen Sound; O.A.C., Professor J. W. Crow.

The control and extermination of the railroad worm was the subject of an address by Mr. W. A. Ross, now of the Dominion Department of Agriculture, who this past summer conducted a special investigation into the ravages of this pest in the Lake Ontario district. Picking up the wind falls was the simple method proposed by Mr. Ross for combating the worm. Mr. W. H. Dempsey and other growers had found this method effective. Chickens and hogs in the orchard help to keep down the pest.

This paper is published elsewhere in this issue.

Mr. W. F. Kidd, who has had charge of the demonstration orchards in the Georgian Bay district, emphasized strongly the necessity of better fertilization, cultivation, pruning and spraying of the orchards in the province. He gave figures showing the results that had been secured in their demonstration orchards to show how profitable are better methods in orchard culture.

In an excellent address on "Orchard Methods that are Bringing Results," Prof. J. W. Crow, of the Ontario Agricultural College, told of the methods that are giving Ontario fruit men the best results. Prof. Crow was not enthusiastic over the results that have been obtained from the use of commercial fertilizers. "Many," said he, "get the idea that they can feed an orchard certain things and get certain results. Only recently Professor Harcourt, of the Chemical Department, received a box of soil with the request that it be analysed, and the sender told just what fertilizers to apply to get large crops of apples." The speaker went on to show that no chemist could determine the requirements of the soil. In the average Ontario soil there is plant food sufficient to feed an orchard for several hundred years. Proper cultivation was the method recommended for liberating this plant food. It is time to study the fertilized question when cultivation fails to bring results.

Professor Crow believes that the important time to cultivate the orchard is early in the spring, when it is making leaf and wood growth and setting the fruit. In order to get on the orchard as early as possible, thorough underdrainage and fall plowing were recommended. All of the fruit growers present did not agree with the professor as to the advisability of fall plowing, and several experiences for and against the practice were recited. Low-headed

trees and the extension type of implements were recommended.

Dr. C. Gordon Hewitt reviewed the work being done by his Department in the supervision of insect pests. Their work is confined to two branches—keeping insects out of the country by the inspection of imported nursery stock and internal work in the suppression of pests that have already gained a foothold. He told of their work in New Brunswick in fighting the brown tail moth. Dr. Hewitt believes that the introduction of the natural parasites of this and other pests would be the most effectual means of combating them.

THINNING PEACHES PROFITABLE

In his talk on the care of the peach orchard, Mr. F. M. Clement, of Dutton, gave the results of an interesting experiment in the thinning of peaches. This paper is published in this issue of The Canadian Horticulturist.

BRITISH MARKET FOR PEACHES

Great Britain as a market for Ontario peaches was discussed by C. A. Dobson, Jordon Harbor, and A. C. Biggs, Burlington. Mr. Dobson stated that of the several thousand packages that he had sent to the Old Country, only one had arrived in anything but satisfactory condition. He laid particular emphasis on the importance of proper packing and quick shipment in cold storage. Only first class peaches should be sent. The English demand is for a very large peach. In his own orchard Mr. Dob-

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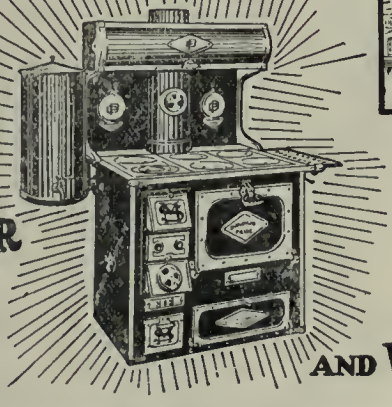

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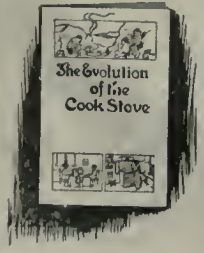

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ONTARIO'S COMPETITORS

The Wednesday evening session was given over to a discussion of fruit growing in other provinces. Mr. A. G. Turney, speaking for New Brunswick, told of the new interest that is being awakened in orcharding in that province. While there are many varieties that they cannot produce, such fancy dessert kinds as Fameuse, McIntosh, Dudley and King can be grown to perfection. Mr. Macoun, of Ottawa, told of that wonderful fruit producing district—the Annapolis Valley of Nova Scotia. This valley, one hundred miles long and six to eleven miles wide, produces practically all of the fruit in Nova Scotia. Apples, pears, plums, cherries and small fruits, and to a limited extent peaches are grown in that valley. In Mr. Macoun's opinion the fruit areas of Nova Scotia would compare favorably with those of any other province in Canada.

Mr. Norman Jack, of Chateauguay Basin, Que., believes that fruit can be grown in every county of Quebec except two or three in the extreme north. McIntosh and Fameuse are their favorite varieties.

Mr. Harold Jones, who had been on a visit to British Columbia, spoke of the fruit districts of that province, stating that British Columbia growers were making great progress, had less insects to compete with than in the East, but that he had come back well satisfied with Ontario.

DISEASES OF THE PEACH

Two very serious diseases of the peach, little peach and peach yellows, were discussed by Mr. L. Ceasar, of the O.A.C. He estimated that in Ontario there were fifty thousand trees that should come out this year; that is four per cent of the whole are affected with one or other of these diseases. He believed that we have been exaggerating the danger of the disease spreading from the nurseries. In fighting the disease he recommended that a good biologist be appointed to spend his summer studying the disease and instructing the inspectors, and in winter in institute work. Inspectors should be appointed by the province.

Mr. B. D. Van Buren, Assistant Chief of the Bureau of Horticulture, New York State, told of the work that he had been doing at Niagara-on-the-Lake. Competent inspectors are employed, and all diseased trees are marked and must be destroyed ten days after. Inspectors are paid salaries up to fifteen hundred dollars a year. Before inspection commenced, some of the best growers had lost their entire orchards. This section is not the cleanest in New York State, and in some orchards the loss is less than .25 per cent annually.

LEASED ORCHARDS

Dr. C. H. Riggs, of Toronto, a large leaser of orchards, gave a summary of the points to be considered in selecting orchards for lease, and told of the methods that they use in restoring neglected orchards to productivity. Cultivation, spraying, thinning and pruning are all practised. In combating the San Jose scale, Mr. Riggs recommended putting on lime sulphur just as thick as it would come out the nozzles. These applications were made after July, and the concentrated lime sulphur used was home boiled. Several of the growers present believed that, were commercial lime sulphur used, such a strength would burn the foliage, and, therefore, that it would be a good plan to try this experiment first on a small plot.

Several phases of co-operative society work were discussed by Jas. E. Johnson, of Simcoe. He urged the importance of start-

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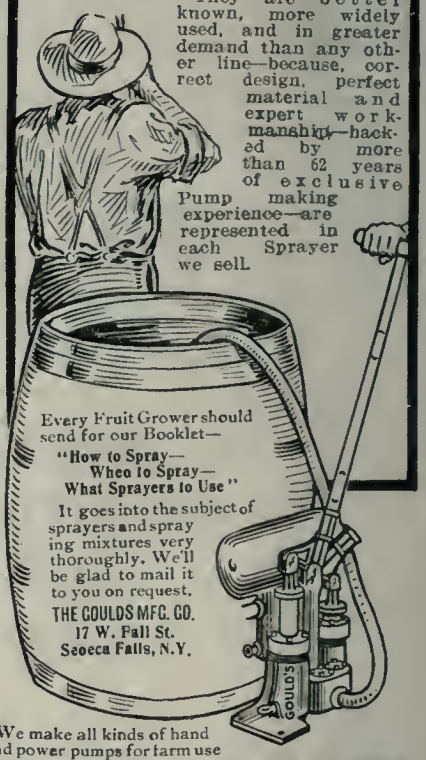

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ing on a small scale and of only receiving into the society members who would live up to its rules. He believed that the members of the societies now organized do not meet together often enough. He considered it better to have several small associations and one salesman for all than a large association with one salesman. In this opinion he was endorsed by Pres. D. Johnson.

Mr. A. W. Peart, of Burlington, discussed the necessity of fuller fruit statistics for use at the Dominion conference of fruit growers to be held this winter, and he made a motion that the provincial government be asked to still further specialize the fruit list by making separate columns for the acreage of apples and, as time goes on, to determine the acreage of other tree and small fruits. This motion was seconded by Mr. Gilbertson and carried.

The idea of holding a National Apple Show in Ontario next year did not receive very favorable comment from the fruit growers, who seemed to think that Ontario is not yet ready for such a move. A paper on "New Fruits" by W. T. Macoun and several of the addresses here summarized will be given in full in future issues of The Horticulturist. The various sessions of the convention were brimful of interest, and distinct benefit should result from the papers and discussions as well as from the resolutions passed.

The Ontario Horticultural Association

(Continued from page 272)

At the evening session on Thursday a splendid illustrated address was given on "The Modern Home and The Garden City Movement" by Mrs. Dunington-Grubb, of London, Eng. Views of some of the noted garden suburbs in England were shown and homes of workingmen, each with its garden attached. The speaker took occasion to deplore the characteristic gridiron system upon which most Canadian cities are laid out. Addresses were given also by Hon. Jas. S. Duff and by Mr. Thompson, of Toronto University.

DIRECTORS' REPORTS

The directors' reports were briefly presented Thursday morning, showing the operations of societies throughout the province. Generally speaking, the year was shown to have been a successful one. It was noticeable that nearly every society had a method all its own of carrying on some special feature. Cobourg and two or three other societies reported having succeeded in abolishing the billboard nuisance.

Mr. C. J. Atkinson, superintendent of the Broadview Boys' Institute, Toronto, delivered a most interesting address, dilating upon the institute and its field of work. This address was one of the most interesting features of the session. Mr. W. T. Macoun, of Ottawa, read a valuable paper on

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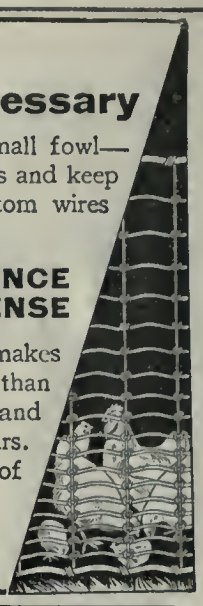

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AS long as a cream separator skims close, it is a good investment. But one good feature or a few good features do not make a separator that will skim close for any length of time.

A good separator is one in which the minor parts have been just as carefully designed and just as well made as the most important parts. A defect in a minor part will, by throwing the entire machine out of adjustment, offset all the perfection attained in any other part of the machine. In the

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Dairymaid and Bluebell

one feature does not overtop all others because the same I H C standard of quality in design, material, and workmanship is maintained throughout. They are the only separators with dust-proof and milk-proof gears which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. These separators have large shafts, bushings, and bearings; the flexible top-bearing is the strongest and most effective found in any separator. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated. I H C Cream Harvesters are made in two styles—Dairymaid, chain drive, and Bluebell, gear drive—each in four sizes.

The I H C local agent will be glad to let you examine one of these separators, or, write nearest branch house for catalogues and other information.

CANADIAN BRANCHES: International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

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I H C Service Bureau

The Bureau is a clearing house for Agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problems to the I H C Service Bureau.

"Spiraeas" that will be published later in THE CANADIAN HORTICULTURIST.

CLOSING SESSION

At the closing session on Friday afternoon Mr. R. B. Whyte, of Ottawa, the retiring president, gave a pithy address on "Currants and Gooseberries," illustrating his remarks by giving a practical demonstration of the proper way to prune berry bushes.

Mr. John Cavers, of Oakville, presented a paper on the gladiolus. He recommended the convex bulbs rather than the flat ones, and the planting of very early and very late varieties, in order to have continuous bloom.

The report of the Committee on Nomenclature was given by Mr. W. T. Macoun, Dominion Horticulturist at Ottawa. It detailed the names of new plants, little or not known at all, in this province. Further mention of these reports and papers will be made later in THE CANADIAN HORTICULTURIST.

OTHER TRANSACTIONS

The proposal made by THE CANADIAN HORTICULTURIST to give prizes for essays on flower growing by members of horticultural societies was endorsed, and such a competition will be held during the coming year.

The sterling silver cup offered by the St. Catharines Horticultural Society, having been twice won by the Toronto Horticultural Society, was presented to that society by Mr. Burgoyne, president of the St. Catharines Horticultural Society, and accepted by Mr. T. D. Dockray, of the Toronto Society.

A resolution was passed in appreciation of the late Mr. James Wilson, Park Commissioner for Toronto, and expressing the condolence of members of the association with the bereaved family. A grant of $10 was made to the Sick Children's Hospital.

50,000 Trees Destroyed

Some idea of the great havoc being wrought in the peach orchards of the Niagara District by the disease "Little Peach" may be gathered from the fact that this season the fruit inspectors of the Ontario Department of Agriculture, by the time they are through with their operations for this season, will have removed some fifty thousand trees in their efforts to prevent the spread of the infection. Writing to the Canadian Horticulturist in regard to this disease Mr. P. W. Hodgetts, Director of Horticulture for Ontario, has this to say:

"The department this year has inspected the orchards twice during the season and has been ordering the immediate removal of all trees marked by the inspectors. We have held a number of meetings in the district to demonstrate to the growers themselves how they can detect the disease and have asked them to assist us in every way possible in the fight against it. It is a serious matter. Next year we will have someone specially trained in peach

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Japan Plums - - - - 20.00 per 100
Raspberries, Black and Red and Dewberries - - - - - $3.00 per 100

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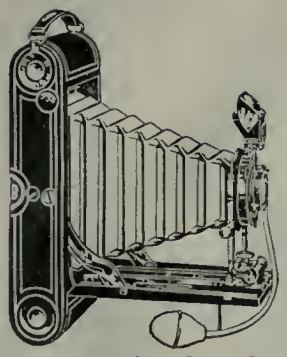

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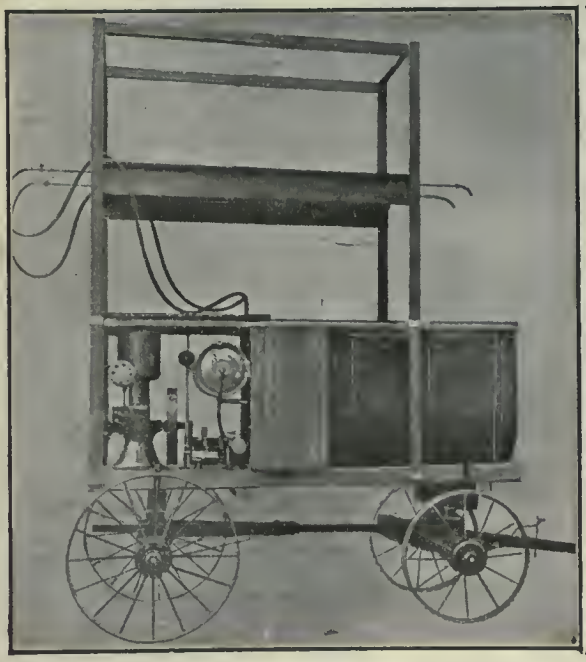

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diseases to take charge of the inspection as carried out through the dozen or more local men who are in the field. I think that with stringent measures for a couple of years we will be able to hold the disease in check at least. In the meantime we have started quite extensive experiments at Jordan Harbor Experiment Station to try to obain further information as to the methods of spread in regard to which our information at the present time is somewhat vague.

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